



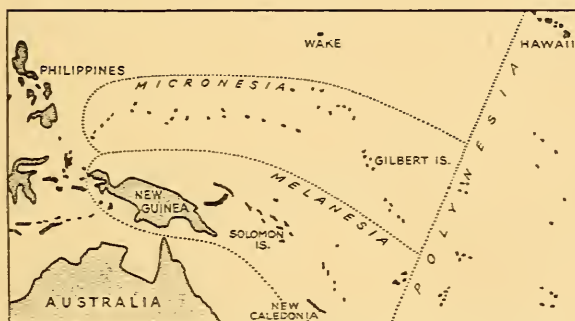
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ISLAND PEOPLES *of the* WESTERN PACIFIC
MICRONESIA AND MELANESIA

By

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ISLAND PEOPLES OF THE WESTERN PACIFIC

MICRONESIA AND MELANESIA

By HERBERT W. KRIEGER

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(WITH 21 PLATES)

THE SOUTH SEAS

American interest in insular geography waxes and wanes with the economic tides. The distant South Pacific islands, almost forgotten since the days of the whaler and the guano ships, have again suddenly been brought into sharp focus. Before 1941, by steamship folder, motion picture, and travelog, we had been made aware of the existence of South Sea coral islands where coconut trees swayed in the balmy breezes of the southeastern trade winds, and dusky maidens cast languishing glances at tourists and beachcombers. The South Seas had become the locale of literary escape from the reality of modern American everyday life. We enjoyed reading Stevenson, O'Brien, Nordhoff and Hall.

We, as a people, did not know of the realistic medical work of the International Health Division of the Rockefeller Foundation whose beneficent activities are centered at Suva, the capital of the Fiji Islands, and cover much of the British Melanesian island world. Neither were we concerned with the missionary activities of the several branches of the Christian church in Fiji, the Solomon Islands, New Guinea, and the islands of the Bismarck Archipelago, which have brought enlightenment and a degree of protection to fear-ridden island peoples of the southwest Pacific. Equally unknown to most Americans is the degree of penetration of civilized law and the extent of its enforcement by Australian district officers throughout the controlled areas of New Guinea, New Britain, and New Ireland among peoples who have but recently been persuaded to discontinue interclan warfare and cannibalism.

Social scientists have noted with interest and have profited through the activities of the Australian National Research Council in furthering cultural studies of native Melanesians. The cooperation of the Rockefeller

PLATE 1

Fengal village at Port Lottiu on the island of Kusaie, the most easterly high island of the Caroline Archipelago.

Foundation since 1926 with the Research Council in a plan of anthropological research was based primarily on the recommendation of the Pan-Pacific Science Congress of 1923. Intensive studies of native daily life, conducted in New Guinea, Papua, New Britain, New Ireland, the Solomons, and other islands of Melanesia under the auspices of the Research Council, have treated food resources, living conditions, ritual, warfare, the role of the headman, effects of contact with the white race, and other phases of social anthropology. Linguistic studies, anthropometric work, and studies related to the physical structure of native peoples were conducted by the same workers only incidentally to their primary sociological interest.

With the exception of the British Crown colony, the Gilbert and Ellice Islands, for which we have the annual reports on the social and economic progress of their native peoples published by H. M. Stationery Office in London, little information is available on changing conditions of Micronesian native life other than that included in the annual reports on the South Sea islands (Nanyo) prepared for the League of Nations Mandate Commission and published by the Japanese in Tokyo. All foreigners have been excluded from the Japanese Mandate which includes altogether 623 islands of considerable size, together with 860 additional islets and reefs. For harbors and air bases, the largest islands are not necessarily the best. From bases in the Marshalls, Japan has attacked the Hawaiian Islands, and from Truk, in the Carolines, she has attacked the islands to the south.

In Melanesia we are dealing with an exclusively French, British, and Australian island area, while in Micronesia, within historic times, the Spanish have, in turn, been supplanted by the Germans and the Japanese. The strategic importance of the numerous island archipelagoes fanning out from Indonesia and the southeastern Asiatic coast was formerly as little appreciated by the British as by the Americans. It was only due to the fears aroused in Australia through the entry of the German Reich within the area near the close of the 1800's that Great Britain began to establish protectorates and to annex island archipelagoes as Crown colonies. The years immediately preceding the recent irruption of the Japanese from their mandated islands in Micronesia, north of the Equator, are marked by a growing consciousness of the strategic importance of the Melanesian islands. For this, Japan's patent desires for political expansion were not alone responsible. The development of aviation had been suddenly stimulated by the invention of instruments making exact flight possible. The plotting of long oversea air courses became an exact navigational procedure and led to the occupation of numerous hitherto

neglected and unoccupied coral islets and lagoons as refueling bases just as island coaling stations had been a requisite to the whaling fleet before the days of the oil-burning cargo vessel.

Politically, the future of each island archipelago will have to be considered as a distinct unit. Loyalties of native island populations to the French in New Caledonia, to the British Crown in Fiji, to the American Republic in Guam and in American Samoa, have developed to a hitherto unexpected intensity. Such loyalties cannot rudely be ignored. Conversely, it must be noted that warring New Guinea native populations in their mountain fastnesses and secluded valleys do not look beyond their own limited economic sphere which is punctuated with local feuding and ritual prescriptions that continue to dominate their thought and action unenlightened by Christian precept or national loyalties. In the more progressive areas of Melanesia and Micronesia, the concept of a mandate over indigenous peoples as "wards of civilization" does not allow for the expression of loyalties keenly felt and manifested. The mandate system has failed to provide for a substitute set of symbols for tribal ritual and ceremony. The church, in certain islands, such as Fiji, has successfully substituted Christian religious ritual and belief for traditional magic, ritual, and primitive religious beliefs. Other islands, as Guadalcanal in the Solomons, are in a transitional stage. Native customs, observance of ritual taboos, and respect for the authority of the headmen, are soon lost when the white man enters the scene.

Along with native ownership of land, which has wisely been largely retained since native populations thereby remain economically satisfied, there has been developed a wage economy, notably in the gold mines of New Guinea, the chromite workings of New Caledonia, the great sugar plantations in Fiji, and in the coconut plantations in the Solomons and New Britain and New Ireland. Low prices for copra in the depression years have made native Melanesian wages the lowest in the world. Absorption of native land rights by great companies along with the introduction of foreign contract labor have on some islands been fatal to native populations.

The South Pacific island world, Melanesia, the dark islands of early geographers, because of the black or brown skin color of its native inhabitants, lies entirely south of the Equator, fringing continental Australia on the north and northeast. It extends from northwest to southeast as a gigantic island crescent, 3,300 miles long and 700 miles wide, and consists of coral reefs, islets, isolated volcanic islands, some of which are still in the process of formation, and closely grouped mountainous archi-

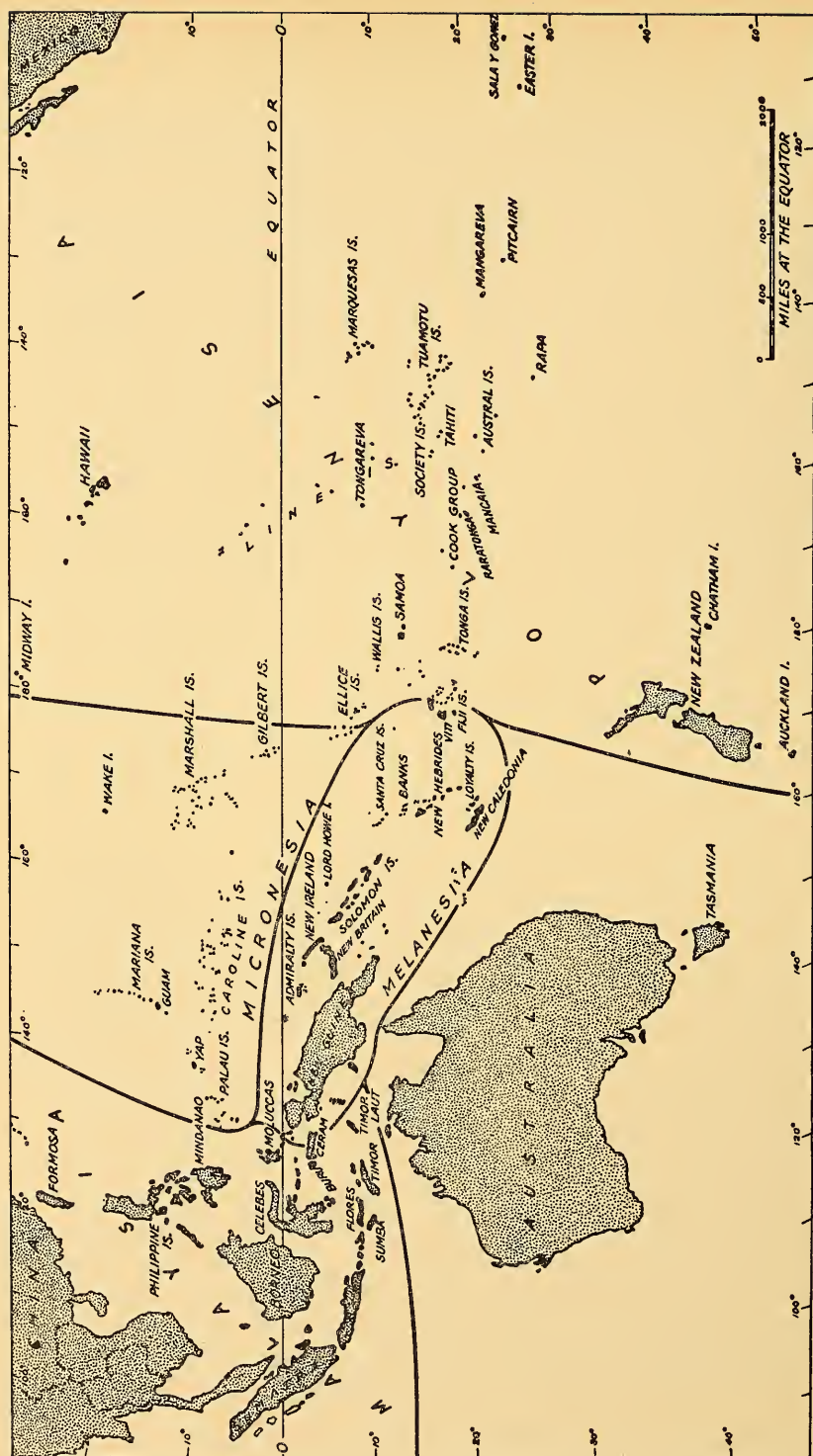


FIG. 1.—Map of Oceania, showing Melanesian and Micronesian islands in their geographical relation to Polynesia on the east, Australia on the south, and Indonesia, or Malaysia, and the China coast on the west.



PLATE 2

Upper: Agaña, the capital of Guam, located on shallow Agaña Bay on the island's west coast. This bay is not to be confused with the Bay of Apra which lies to the south and shelters at its inner end the port of Apra.

Lower: A typical village house of Guam on the road from Piti to Agaña. To be noted are the walls of plaited matting, the thatched roof, and, on the left, the native cart with wheels of hewn hardwood.





PLATE 3

Upper: Woman of Fengal village, Port Lottiu, island of Kusaie, in the eastern Caroline Archipelago, weaving a narrow fabric on hand loom.

Lower: Woman of Fengal village twisting bark into thread by rubbing her hand over knee and thigh in lieu of a spinning wheel.





PLATE 4

Upper: Kiti Harbor of Ron Kiti village, island of Ponape, eastern Carolines. The dugout outrigger canoe in foreground is being paddled by boatman in characteristic dress.

Lower: Yap, the island of stone money, easternmost of the Caroline Islands. The disks of worked calcite precariously transported from the distant Pelew Islands are prized as evidence of wealth. The large structure in the background is the village council house.





PLATE 5

Left: Fighting man of Moen Island, Truk Lagoon, Caroline Islands. Note the abundance of decorative appendages but the absence of upper garments.

Right: "Nobleman" of Ponape, eastern Carolines. The plaited decorative fiber belt and bark fringes of the skirt have more recently been replaced, for the most part, with trade cloth of printed cotton.



pelagoes. Geographically included is New Guinea, the second largest island in the world. Melanesia also includes one of the smallest, most densely populated and self-contained marginal island civilizations known to man, that of Ticopia, where on an isolated volcanic island, 3 miles long and 2 miles wide, nearly 1,500 natives manage to maintain an entirely satisfactory existence uncontaminated by white man's commerce and in entire ignorance of the use of money.

The older map projections, such as the now obsolete Mercator's, portrayed the great expanse of the Pacific as a flat surface, as wide in the far north, in the Aleutians and the waters of Alaska, as at the Equator. This distortion tended to minimize the great distances within equatorial Micronesia and Melanesia. On a modern global map, a degree of longitude at the Equator is the equivalent of 69 land miles, while a degree in the converging lines of longitude in the Aleutians, much farther north, is the equivalent of but 40 statute miles. Actually, therefore, the Micronesian and Melanesian islands, which lie almost astride the Equator and cover a segment of 48° of longitude, are extended over a distance of 3,300 statute miles, while the Aleutians, including the Soviet Komandorski Islands, in a shrinking subarctic latitude extend from east to west over 30° of longitude, a distance of but 1,200 miles.

The great marginal Melanesian island of New Guinea alone is 1,500 miles in length, almost the distance from New York City to Denver, while the Solomon Island archipelago from northwest to southeast stretches a total distance of 700 miles. If a map of the Melanesian Pacific area is superimposed on a map of the United States drawn to the same scale, the most easterly Melanesian island archipelago, the Fijis, coincides on the Atlantic coast with the Virginia capes; the most southerly Melanesian island, New Caledonia, covers northern Florida; while New Guinea at its western bird-shaped "head" lies out in the Pacific beyond the California coast line. New Ireland, the Admiralties, and the outlying islands of the Bismarck Archipelago extend to the Canadian border.

Until recently Melanesia was to most Americans an area in which they were decidedly not interested. No active contacts were maintained politically, or by traders or missionaries. Recent world developments have aroused our curiosity as to the Melanesian way of living. It is as though a number of new neighbors from a foreign land had moved into our block.

Then, too, the people of the United States, surveying a bordering ocean, the great island-studded Pacific, 10,000 miles wide at its middle and extending all the way to China, are now definitely committed to an increasing interest in its island populations and coral atolls. Many of

these islands great and small are potential naval bases of possible use to the foe if not to a friend, since the radius of fleet action for surface ships remains limited despite recent developments in aviation and air transport.

The term "Oceania" as applied to the islands of the Pacific Ocean is contrasted with the term "Indonesia" which applies to the several archipelagoes lying off the Asiatic coast including Formosa, the Philippine Islands, and the Dutch East Indies. So vast is the expanse of the Pacific that within Oceania several well-defined island areas are recognized. Among the Polynesian volcanic and coral island groups of the eastern and mid-Pacific, the best known to Americans is Hawaii, which has been an organized Territory of the United States since 1900. Samoa, in the South Pacific, is much more remote from the United States but nearer the Melanesian islands of Fiji and has been under partial American protection since 1889 and, in part, a United States possession under the administration of the Navy Department since 1898.

Dotting the vast expanse of the central and western Pacific north of the Equator lie the thousands of small volcanic islands and coral atolls of Micronesia, a term derived from the Greek *mikros* (small), and *nesos* (island). The American volcanic island of Guam, in the Marianas, and the Japanese storm center, the Truk archipelago (Hogolu), in the Caroline Island group, are typical small Micronesian islands. Other Micronesian groups from east to west are the Ellice (inhabited by Polynesians), the Marshall, Gilbert, Mariana, Pelew or Palau, and the Japanese Bonin islands, the latter facing Japan and at one time under United States control. South of the Equator in the western Pacific lies the third great division of Oceania—Melanesia, from the Greek *melanos* (black), and *nesos* (island), or the black islands, the inhabitants of which are not all black but range in skin color from jet black to saddle brown.

In establishing the boundary between the Japanese Micronesian and the Australian Melanesian mandates at the Equator, the League of Nations has made the first extensive use of that imaginary line as a political boundary. The Australians have scrupulously refrained from setting up armaments within the area mandated. Japan, on the other hand, has fortified the coral atolls of its Micronesian mandate. The Solomon Islands, a British protectorate of earlier standing than World War I, have become a frontier against Japanese aggression through Micronesia. They have long been a British frontier for Australian shipping and trading interests, for the coconut planter, and for missionaries sent by English church bodies.

DISCOVERY AND EARLY HISTORY

Ferdinand Magellan, a Portuguese in the service of the King of Spain, discovered the Marianas, a Micronesian island archipelago, 1,300 miles east of the Philippines, March 7, 1521, while sailing across the broad Pacific in quest of the Spice Islands. After passing through the tortuous straits that bear his name, at the southern tip of South America, he sailed for 4 months across a barren ocean without sighting an inhabited island. His ships finally anchored at Apra, a harbor on the island of Guam, the largest of the Marianas. There his crew obtained fresh water and food—coconuts, yams, and rice.

An early Spanish estimate of the native population of Guam as 50,000 is probably too high. Here, for the first time, the Spanish saw the outrigger canoe with its pointed mat sail. There were so many of these boats that Magellan named the islands the Isles of the Lateen Sails. However, after suffering the loss of a ship's boat and other annoying thefts, Magellan renamed the islands Los Ladrones—Isles of Thieves. In 1668 a Jesuit, Padre de Sanvitores, established a mission on the Ladrones. This was the first Christian mission station in Oceania. Opposition in China and Japan to the entrance of Spanish missionaries, also the abandonment of Mindanao in the Philippines as a mission field, led to this undertaking. Filipino catechists were landed at Guam and were at first favorably received. Land was provided for the mission at Agadna (Agaña) by native chiefs known as *chamorri*. Later this name was applied by the Spanish to the entire native population. Hence, we now speak of the natives of the Marianas as the Chamorros.

The Jesuits renamed the islands the Marianas in honor of the widow of a Spanish king. Forced baptizing of children against the wishes of their parents led to quarreling on several of the islands and the Spanish were obliged to fortify Agaña, their capital. The Spanish policy of colonial government gradually became more exacting and conversion was at the point of the sword. Entire islands in the Mariana group became depopulated through slaughter of the native population, or its concentration on the island of Guam. Disease, such as introduced smallpox and Asiatic cholera, increased the rate of depopulation. The explorer Dampier, who touched at Guam in 1686, stated that where the Spaniards had found 30,000 people, there were not above 100 natives remaining. A half century later, the population had again increased on the island of Guam, but with the exception of the island of Rota, where a few Chamorro natives survived, the population of all other islands of the Mariana archipelago had vanished. Colonization, mostly of Tagalogs from Luzon,

in the Philippines, was encouraged. The native Chamorro stock had become almost extinct.

The heated rivalry between Spain and Portugal for positions of vantage in their trade with the Indies led indirectly to the European discovery of Melanesia. As early as the year 1527, the Portuguese, Jorge de Meneses, came upon the north coast of New Guinea. Meneses, to be sure, was sailing in Spanish waters east of the meridian designated by Pope Alexander VI as the boundary line of island territory to be acquired by Portugal. He paused long enough to name the island Papua, a name that survives to the present day as applied to the southeastern fourth of the island. Papua is a Malay word meaning "curly haired." The north coast of New Guinea was later rediscovered over and over again by Portuguese, Spanish, Dutch, and English navigators, all of whom agreed that this was the north coast of Terra Australis, the great southern continent that in the days of Pliny, the Roman geographer, supposedly included even the continent of Africa. After much of its supposed area had been found by later exploration to be nonexistent or distinct islands, what remains of Terra Australis is applied to the not inconsiderable land mass of continental Australia. The inhospitable Papuan coast, which had few harbors and which was inhabited by comparatively naked cannibals, did not appeal to the European explorers in search of gold, spices, and the precious gems of India. It was only as late as the year 1700 that the English Captain Dampier systematically explored and charted the north coast of New Guinea, and 67 years later still that another Englishman, Carteret, was able to recognize the insularity of New Guinea and of the large island of New Britain near its northeast coast. The east coast of Australia itself was first discovered by Captain Cook in 1770. Cook's discoveries in Melanesia, like those of the French Bougainville and d'Entrecasteaux, were not immediately utilized. It was only in the nineteenth century that a systematic exploration of New Guinea was undertaken by Dumont d'Urville, Owen Stanley, the Russian, Miklucho-Maclay, and the Germans, von Schleinitz, Finsch, and others. The names of most of these explorers are perpetuated in Melanesia in numerous place names.

In 1546 the Spaniard, Ortiz de Retus, renamed Papua Nueva Guinea because of the striking resemblance of the natives to the Negroes of the Guinea coast of West Africa. Although the enterprising explorers of the early post-Columbian days did look at most of the islands of the South Seas with greedy eyes, their objectives were limited. The rivalry between Spain and Portugal, which led to the occupation of the Moluccas

by the Portuguese and of the Philippines by the Spanish and the later conquest of the great and little Sundas by the Netherlands, may be traced directly to one economic and political motive, namely, the acquisition of the riches of the Indies. The desire to spread Christianity was a conscious secondary motivation on the part of the clerical element among the early Spanish explorers. One finds nothing of this type of incentive in the appropriation of colonies by the great powers during the latter decades of the nineteenth century.

So vast is the expanse of the southern Pacific that this circumstance alone may account for the complete disappearance for a period of 200 years of an entire archipelago—the Solomon Islands, now known to be more than 600 miles in length. This archipelago, which its discoverer, the Spaniard Alvaro de Mendaña de Neyra, named the Isles of Solomon, is, with the exception of the northern coast of New Guinea, the first Melanesian territory to be sighted by Europeans. The islands have not yet, after a lapse of 375 years, been completely explored. Mendaña sailed from Callao, Peru, in November 1567, with the stated object of discovering the great southern continent Terra Australis. There was, however, a more practical purpose which the expedition, consisting of two small ships—the *Capitana* and the *Almirante*—hoped to accomplish. Geographical research as understood today was far from a compelling motive to the great explorers of the "Age of Discovery." If it were not spices or gems that were sought, it was gold. The fact that Mendaña named his discovery the Isles of Solomon did not, of course, indicate that he actually had found the gold which he sought.

Mendaña's voyage from Callao to the Solomon Islands covered a distance of approximately 7,000 miles. On his voyage of discovery to the Solomons, Mendaña sighted an island of the Ellice group 57 days after leaving Peru in November 1567. Seventeen days later, on February 1, he sighted another island, which proved to be the coral atoll now known as Ontong Java (Lord Howe Island), though known to its native population as Liueniua. Mendaña named the first island of the Solomons where landing was made Santa Ysabel, a name the island still retains. Several other islands were visited and named, including Florida, San Cristoval, and Guadalcanal—names still applied to these several islands. The native name of Guadalcanal, however, is Sevo, while Florida, in Melanesian, is Nggela, and San Cristoval is Makira. The native name for the large island of Malaita is simply Mala, *ita* meaning "over there."

Quite aside from the mountainous character of the islands which suggested to the Spaniards that gold might be found, they observed the

native use of a club with a stone head embodying quantities of iron pyrites. The officers of the expedition knew this for what it was, but the crew remained unconvinced. Six months were spent in cruising among the islands and in charting the coast lines. Mendaña did not mention the Solomon Islands in his report after again reaching the American continent in 1569. Perhaps he feared competition in the development of his fantastic discovery of the islands that were expected to bring him and his family the fabulous riches of the Solomons. He reembarked from Peru in 1595 with a small squadron consisting of 4 ships and 368 immigrants—men, women and children. After reaching the Santa Cruz islands, which lie only 200 miles east of the Solomons, disease, trouble with the natives, and internal dissension broke up the plans for colonization. The Solomons were not even reached. The course was changed for the Philippines.

In 1605 Quiros, who had accompanied Mendaña on his second voyage as chief pilot, attempted again to reach the Solomons, but missed them entirely. His mutinous crew forced him to return, although an accompanying ship under de Torres sailed on again, missing the Solomons, but reaching the narrow strait separating Australia from New Guinea, a shallow and island-studded body of water now bearing his name. The records of Mendaña's two voyages and that of Quiros were not published although word of mouth accounts of the wonderful islands of Solomon located them on the map all over the western Pacific. Later explorations by the Dutch, English, and French had to discover the islands anew.

In 1767 Carteret sighted Malaita. Bougainville's discovery of the northern Solomons about the same time is perpetuated in his name which is still applied to the largest of the group. Two convict transports under Lieutenant Shortland sailing for Botany Bay, Australia, England's new outlet for exiled convicts after the American Revolution had closed the American outlet, rediscovered the Solomons and applied to them the new name, New Georgia, a term still retained as the name of one of the western islands of the archipelago. Shortland's name is perpetuated in the Shortland Islands. French squadrons under d'Entrecasteaux, La Pérouse, and d'Urville also visited the area, the latter in 1838. The names of his two ships, the *Astrolabe* and *Zeelee*, are perpetuated as geographical terms. Despite the sketchy character of these exploratory voyages, most of the coasts have been fairly well charted. The interiors of practically all the Solomon Islands are for the most part unknown.

Whalers and traders frequently visited the Solomons during the nineteenth century in search of stores and foodstuffs and to carry on

trade with the natives. Tortoise shell, sandalwood, trepang, and later coconuts were the chief objects sought in trade. The stealing of natives as slave labor on plantations elsewhere began in the 60's. At first they were kidnapped for work on the guano islands and later for work on the cotton plantations in Fiji. "Blackbirding" ships soon became notorious. Naïve and curious natives were invited aboard and enticed to go below deck, when the hatch covers were closed and the ship would depart with its slave cargo aboard. A particularly inhuman method was to entice the natives in canoes to come alongside, when the canoes were upset with grappling irons and the natives then fished out of the water and kidnapped. All this, of course, was in the days before the annexation of Fiji as a British colony. Somewhat later, about 1875, the demand for seasonal laborers on the sugar plantations of Queensland, Australia, also led to blackbirding and the kidnapping of natives of the Solomon Islands. This traffic did not cease until 1903. The high death rate of kidnapped natives formed one of the causes of depopulation which had become general throughout Melanesia until quite recently.

The great English explorer of the Pacific, Capt. James Cook, with his ships, the *Adventure* and the *Resolution*, landed on September 5, 1774, on the northern coast of New Caledonia at Balade and gave to the island its present name. He sailed southward along its east coast on the way to New Zealand. Twenty years later, in 1793, two French ships, the *Recherche* and the *Esperance*, landed at the same place under Bruni d'Entrecasteaux after they had sailed northward along the west coast of the island following its great outlying barrier reef. About the same time in 1793 the English Captain Kent discovered the bay on the south coast which he named St. Vincent. By the year 1827 various French and English explorers had discovered and charted the entire group which we now know as the New Caledonia and the Loyalty Islands. The entire Melanesian area during the years following this period of discovery was a lawless world in which American and European whalers, blackbirders, and sandalwood merchants participated from time to time. This advance guard of civilization presented a somewhat bewildering picture to the native population. Accustomed as the New Caledonian clans were to defend their several territories from aggression by one another, they were not slow to kill those who robbed, murdered, and molested them. In spite of existing undeclared warfare, a group of sandalwood merchants did succeed in establishing friendly relations with the natives on the Island of Pines (Pins) in the 1840's. A lively trade was conducted in axes, guns, cloth, and tobacco.

The entry of the French into the Melanesian picture is somewhat typical of Gallic impetuosity. The French navigator, d'Entrecasteaux, when he landed in the Bay of Balade at the extreme northeast corner of New Caledonia in 1793, remained on the island long enough to make a thorough report to the authorities in the French establishment in the Marquesan Islands. In 1843, the grand chief of Balade ceded French Marist missionaries a tract of land in exchange for metal axes and beads. A mission was established, and at the farewell feast before the *Bucephale* sailed away with the French Admiral, the assembled chiefs were informed that France had established sovereignty over the island.

France wanted to use the island of New Caledonia as a naval base and trading depot as she had no possessions in that far part of the Pacific. The French flag which the Admiral and the Bishop had so briefly planted at Balade was later again lowered at the insistence of the British. However, when in 1853 a French naval officer, while attending a function in Sydney, learned that a British naval detachment was instructed to annex the island for Great Britain, he immediately informed his superiors of this development. France and Great Britain were comrades at arms at the time in their war against Russia. Whatever new seizure of the island was undertaken had, therefore, to be engineered without giving too much offense to their ally. Napoleon issued two sets of instructions to two contingents of the French fleet to take possession of the island at two points and to fortify these. These instructions were not to be carried out, however, if they found the island already occupied by some other power. Admiral Despointes received his orders while at Callao, Peru, but did not divulge the purpose of the voyage until he had left Tahiti. Even at Tahiti he covered his tracks by not taking aboard provisions sufficient for a long journey, provisioning being effected secretly from another French boat. Arriving at New Caledonia September 24, 1853, he again raised the French flag at Balade and 2 days later at the Ile des Pins.

The actual rulers of New Caledonia during the early years of French occupation were undoubtedly the Marist missionaries, although many of them were killed and eaten. Neither France nor England, of course, realized the mineral resources hidden in the low hills and mountains of New Caledonia.

MICRONESIA

GEOGRAPHY

The myriads of small coral islets, reefs, and volcanic islands, which together make Micronesia, pepper the western Pacific north of the

Equator. As mentioned before, the first explorers were keenly interested in their great number and their outstanding trait of smallness. In the much larger islands south of the Equator, however, they observed with greatest astonishment the dark-skinned and frizzly-haired native inhabitants. Micronesia extends a full 2,000 miles from east to west and about the same distance from north to south. The most westerly of these, the Pelew, or Palau, Islands, lie not far from the southern Philippines. Directly east are the Carolines which in the form of innumerable reefs, coral islets, and the volcanic islands of Yap, Truk, Ponape, and Kusaie dot the Pacific from Yap to Kusaie, a distance of more than 1,500 miles. Northeast of the Pelews in a straight line extending from north to south lie the volcanic Marianas in their relation to the Carolines like the stem of an inverted capital T. East of the Carolines lie the Marshall Islands, the Gilberts straddling the Equator, and the Polynesian Ellice group directly north of Fiji.

The six Micronesian archipelagoes lie for the most part north of the Equator, while the islands of Melanesia, which occupy an identical longitudinal segment of the western Pacific, lie altogether south of it, and are for the most part large, mountainous, and rather compactly situated with relation to one another and to the Australian continent. They were presumably connected by land bridges during the geologic past. Almost altogether of coral origin, the Micronesian islands are small and have a total area of less than 1,400 square miles. Their combined native population when first brought into contact with the white race is estimated at approximately 100,000. The native population of all Micronesian islands in 1938 was 107,334. This slight increase becomes significant when contrasted with the general depopulation that has swept away much of the native population in the great Melanesian islands. Furthermore, in the Japanese-held Pelews, Carolines, and Marianas, an additional 70,141 Japanese immigrants must be included. Ultimately, this will lead to the extinction of the native Micronesians on those islands or to their amalgamation with the Japanese newcomers. By way of contrast, the Gilberts and the Polynesian Ellice Islands have a foreign immigrant population of but 793 Chinese and 261 Europeans.

The low, flat island formations of Micronesia owe their origin to the lowly coral polyps. A smaller number of high islands were formed through combined volcanic action and deposition of coral debris. These are covered with a heavy growth of vegetation, since the high mountain ridges precipitate rain. On the low coral islands of Micronesia, however, there is frequently a scarcity of fresh water. The coral atolls rest on the

top of submerged mountains many fathoms below the surface of the water. The coral polyps feeding on the upper slopes of these mountains slowly built up reefs which, owing to the substructure on which they rested, assumed circular shape. Fragments of dead coral are forced above the water level by the action of tide, wind, and wave and form the beginnings of an atoll. The height of a coral island above the surface of the sea is rarely more than a few feet, although the circular reef of which the low islands are a part may be many miles in its outer periphery. The greater portion of the reef remains awash at high tide. Within the circular reef is a sloping sandy beach and an enclosed lagoon of quiet water. The outer slope of the reef exposed to the sea is studded with boulders of rough, dead coral broken off by the combined action of wind and sea. Lime-secreting plants aid in binding together the coral to make a wave-resisting barrier. Reef corals have been found alive in dredging from depths of 40 fathoms. Reefs, however, are not built from depths of more than 200 feet.

Micronesia, for the most part a featureless expanse of ocean dotted with coral atolls many leagues apart, is a region of steady winds from which the low islands fail to attract much rain, except in the eastern area where the rainfall is heavy, although the high islands, among them notably Kusaie, Yap, Ponape, and Guam, have abundant precipitation and luxuriant vegetation.

Scattered atolls provide a uniform and circumscribed environment for their isolated communities. The outer margin of an atoll has the fresh tang of the wind and the steady thunder of rollers dashing a lively barrage of spray along the reef, and pounding its edge into large, sharp-edged coral lumps, which rattle noisily in the backwash. The grateful, cool shade of coconut groves provides relief from the blinding glare of the sun on the reef. Dazzling white inner beaches encircle the placid waters of the lagoon. Villages of the Micronesian natives are usually built on the inner side of one or more islands of the atoll facing the lagoon. The life of the Micronesian is hard, but in his coral island home he is less subject to many of the diseases always present in the insect- and germ-laden environment of his Melanesian neighbor living on the great islands to the south. Micronesia has a fairly healthy native population. However, the introduction of Japanese commercial undertakings such as the growing of sugarcane in Saipan, one of the Marianas, has brought myriads of flies and diseased immigrant laborers, and accelerated native depopulation.

Resources provided by nature are meager. Fish are always a staple

food, and coconuts and the fruit of the pandanus are usually available. Root crops such as taro are nonexistent or inferior although the introduced arrowroot has become a staple crop.

Among the algae growing on the coral reefs of the Caroline and Mariana Islands, the most conspicuous are the brown Padinas with fanlike fronds expanded like the tail of a strutting peacock. From some of the gelatinous species of red algae the natives make blancmange.

At the mouths of streams of the high or volcanic Micronesian islands where the water is brackish and the shores are muddy, mangroves and their allies form dense thickets which extend far out into the water at high tide. Thickets of nipa (*Nipa fruticans*), a stemless palm with great pinnate leaves, are also found near the mouths of most of the rivers where the water is brackish, and are used by the natives for thatching their houses. Associated with it are large, simple pinnate ferns, of wide distribution throughout the warmer regions of the globe. At least two species of bamboo grow on the high islands.

The principal beach plant is called goatsfoot convolvulus, from the shape of its leaves. Its long, prostrate stems form a carpet over the sand without twining or taking root, and bear large, rose-purple, funnel-shaped flowers. In addition to many species of beach plants are a number of shrubs growing in the vicinity of the beach—the beach plum with white, honeysuckle-like flowers and exserted pink stamens, and the custard apple being characteristic.

The forest vegetation of the Micronesian volcanic high islands consists almost entirely of strand trees, epiphytal ferns, lianas, and a few undershrubs. The principal trees are the wild breadfruit, the Indian almond, jack-in-the-box, the giant banyan, called *nunu* by the natives, with prop-like, aerial roots growing down from the limbs and with fruit resembling small, red crabapples. A handsome tree known in the East Indies as Alexandrian laurel yields the tough cross-grained wood of which the natives of Guam make their cart wheels. *Heritiera littoralis*, called in India the looking-glass tree, furnishes the natives of Guam with tough wood for their plows and wheel spokes. Among recently introduced trees are *Canarium odoratum*, the fragrant flowers of which are the source of the perfume known as *ilangilang*; the custard apple or bullock's-heart; and a leguminous tree known in the East Indies as the Manila tamarind, but which was brought from Mexico for the sake of its tannin-yielding bark and its edible pods. The betel nut palm, *Areca catechu*, grows spontaneously in damp places; a small, slender-stemmed species allied to *Areca*, called *palma brava* by the natives, is gradually spreading over the

Mariana Islands. The sago palm has been introduced sparingly. Among the succulent plants are wild ginger (*Zinziber*), turmeric, and the Polynesian arrowroot (*Tacca pinnatifida*).

Grassy upland regions on the volcanic islands of Micronesia are almost devoid of trees and shrubs. They are characterized by a red claylike soil. *Miscanthus japonicus*, which covers large areas, is called sword grass on account of the cutting scabrous edges of its leaves. It grows higher than a man's head and offers refuge for deer. Roofs thatched with this grass are more durable than those of coconut or of nipa palm leaves, but more work is necessary in their preparation. They are not common except in regions where coconuts and nipa palms are scarce. Seed-bearing plants are gradually spreading over the islands through the medium of fruit pigeons. Pineapples continue to grow for years where they are planted, and in old garden spots are found plants of the introduced arrowroot (*Maranta arundinacea*) as well as the native arrowroot, turmeric, wild and cultivated ginger, and the cassava plant, or manioc (*Manihot esculenta*). Among the trees and shrubs which do not spread of their own accord are the tamarind, the cashew nut (*Anacardium occidentale*), the tree which in Honolulu is called the golden shower (*Cassia fistula*), the pomegranate, and the scarlet hibiscus.

Among the plants which on account of their sterility must be planted by man are the textile screw pine or aggag (*Pandanus tectorius*); the seedless breadfruit or lemae (*Artocarpus communis*); taro (*Colocasia esculenta*) and yams (*Dioscorea* spp.), which are seldom known to produce seeds; sweet potatoes, which are propagated by cuttings; and bananas and plantains, which are seedless and must be grown from root suckers. Whole fields in the Marianas are overgrown with guava bushes, just as in the Hawaiian Islands and many other tropical countries.

Oranges, lemons, limes, and shaddocks are planted about the villages of the high islands. In many gardens grow the pomegranate, atis, or sugar apple (*Annona squamosa*); liguana or soursop (*Annona muricata*); and the papaya (*Carica papaya*). Coffee, bananas, and plantains of several varieties are planted, also vines of betel pepper (*Piper betle*) which cover trees and walls. The oleander, crape myrtle, and scarlet hibiscus are planted for the sake of their flowers. Along the roadsides are fine mango trees; *Melia azedarach*, the "pride of India," bearing clusters of lavender flowers with dark violet stamens; the horse-radish tree; the silk-cotton tree (*Ceiba pentandra*); the leguminous *Sesbania grandiflora*, called *katurai*, with edible flowers and seed pods; and the *Poinciana pulcherrima*, called flower fence in the British West Indies,

bearing racemes of beautiful red and yellow flowers; and the Indian almond.

Among the rarer trees are the magnificent flamboyant; the cabo-negro palm and the ivory nut palm of the Caroline Islands; the candle nut (*Aleurites moluccana*), called *kukui* in Hawaii, and the *Pangium edule*, "rauel," on the island of Yap.

Of special interest on account of their method of germination and growth are the giant banyans (*Ficus* spp.) of the forest, and the mangroves of the brackish estuaries. The banyans usually begin their existence upon other trees, sending down aerial roots which interlace and grow together, clasping the trunk of their host, and eventually strangling it. They then lead an independent existence, their great spreading limbs sending down more roots, which are like pendent threads at first, but soon thicken after gaining a foothold in the earth, and serve as columns to support the great dome of foliage overhead, as well as to supply it with nourishment and moisture.

The chief interest in the mangroves lies in the fact that their fruit germinates while still attached to the tree, the spindle-shaped radicle perforating the apex of the fruit, elongating and hanging vertically downward. When the fruit falls, the radicle sticks into the soft mud below, retaining an upright position, like a stake thrust into the ground, and resisting the current of the tide as it ebbs and flows.

Among Micronesian plants there are a number that exhibit in a marked degree the phenomenon known as sleep movements, folding their leaves each night and opening them again at sunrise. Some of them are so sensitive to changes in the intensity of light that they go to sleep if the sky suddenly becomes overcast, and wake up when the sun reappears.

Interesting examples of self-protection are offered by several plants growing in Guam, the most striking of which is that of the spiny yam. This plant grows spontaneously on the island and in places forms impenetrable thickets. It takes its name from a mass of spines surrounding the base of the stem and serving as a protection to the starchy tubers below from hogs and other enemies.

Among the principal food staples of the high islands is the taro (*Colocasia colocasia*), a plant of the Arum family. Both the land and water varieties are found invariably to have their smooth, succulent, satiny leaves free from the ravages of snails, insects, or herbivorous animals. Cattle and chickens delight in nipping off the young leaves of bananas and plantains; deer often inflict serious injury on a young coconut plantation in a single night; breadfruit trees suffer from the attacks

of all herbivorous animals, and must be protected from them—fruit, leaves, and bark; and even tobacco will be devoured in the field by insect larvae unless it is carefully watched and attended. On chewing a small portion of a taro leaf, the cause of its safety from attack is at once apparent. The tongue, roof of the mouth, and lining of the throat seem to be pierced by a thousand tiny needles. This burning sensation is caused, not by an acrid fluid, but by minute needlelike crystals of calcium oxalate contained in their tissue. Not only is the root of the taro edible, but the tender young leaves are eaten like spinach or asparagus. When not thoroughly cooked, however, they retain their acidity, and in Polynesia it is a common occurrence to experience an intense burning of the throat after a meal of savory taro tops cooked with coconut custard.

On the sandy beaches there is sometimes a line of drift just above high-water mark which is rich in seeds, fruits of various kinds, and driftwood brought by the great ocean current that sweeps across the Pacific from east to west. Sometimes the seeds and logs are riddled with teredo borings or are covered with barnacles, but often they appear fresh and little worn by the erosion of the waves and sand. Many of the seeds are dead; some of them are alive and capable of germination. Not all the species that reach the islands gain foothold there. The fruits of plants growing in muddy estuaries or mangrove swamps, for instance, cannot establish themselves on a clean, sandy beach. Germinating fruits are frequently cast up only to die, and nuts of the nipa palm, though found in perfect condition, can establish themselves only near the mouths of streams where the water is brackish. Though coconuts are of frequent occurrence in the drift, it is interesting to note that on the eastern, or weather, side of the islands where they are washed up, there is not a single coconut grove near the water's edge, while on the western, or lee, side, where groves have been planted, they grow so near the sea that their roots are often bared by the waves.

The seeds that occur in the drift owe their buoyancy to various causes. Many of the "sea beans" enclose an air space between their cotyledons; others have kernels which do not fill the stony, water-tight shells, but leave a space for air to keep them afloat; some have a separate air chamber; others have fibrous envelopes or husks composed of light tissue; and still others have woody or corklike shells of low specific gravity.

The most beautiful land bird on the Micronesian islands is the rose-crowned fruit dove. The general color of its plumage is green. Its head is capped with rose-purple and the lower surface is yellow and orange, with some purple on the breast. When it utters its mournful, sobbing

note it presses its bill against its breast and swells the back of its neck. Another fruit dove is of a uniform reddish-brown color, while the male has a white throat and olive-green reflections on its breast. Another bird, probably introduced, is the beautiful little pigmy quail. This bird, which is only 5 inches long, is remarkable for the large size of its eggs. They are of a brownish color, sprinkled with deeper brownish dots, broadly ovate in form, and 1 inch through in their greatest diameter. The most remarkable bird of the Marianas is a megapode closely allied to, if not identical with, a megapode found in the Pelew Islands, and is of the same genus as the jungle fowl or mound builder of Australia. It is about 9 inches long, and is remarkable for the thickness of its legs and the size of its feet. It is of a brownish color with a grayish head on which there is an area of naked skin of reddish color, and with yellow bill and legs. It flies heavily. These birds have a habit of heaping up mounds of earth, decayed leaves, and rubbish in which they lay their eggs. They have been collected on the islands of Rota, Saipan, Pagan, and Agrigan, of the Mariana group. The natives attract them by knocking stones together. The short-eared owl is well known to the natives of the Mariana group. They describe it as having big eyes and a catlike face, and say that it catches lizards. It is said to be common on the island of Tinian.

Numerous land birds frequent the high islands but are not found on the low coral atolls. Among these are kingfishers which feed upon insects and lizards. A swift which builds a nest of leaves stuck together with a secretion from the mouth is, however, a different species from the edible-nest-building swift of China. Numerous shore birds such as the bittern, the rail, the plover, the reef heron, and others are caught by means of path snares. Sea birds, particularly snow-white terns, boobies, and frigate birds, are common.

There are few reptiles in Micronesia. A large lizard, black in color and speckled with yellow dots, occurs in the Marianas where it is considered a great pest. The gecko, a small semidomesticated house lizard, is beloved by the natives because it devours insects. It pursues vermin while running upside down on the ceiling or rafters of the native house. Several of them may be seen at times stealthily surrounding a single insect.

Sea turtles are common. Fish remains a staple food throughout the extent of Micronesia, although here, too, natives now prefer to eat their fish out of tin cans. Nets of various description are used, as is also a stupefying poison obtained from the crushed fruit of the *Barringtonia asiatica*, a glabrous tree known to the Mariana islanders as *puting*. Fishermen are able to scoop up the stupefied fish in nets or to spear them after a bagful of the narcotic has been sunk in deep holes in the reef.

Insect life has not been thoroughly studied on all the larger islands. To the casual observer the insects are not particularly obvious. There are, for example, no highly colored butterflies as in the Solomon Islands and New Guinea. Insect pests, however, are present in sufficient number to make native gardening in most cases hazardous. Mosquitoes are troublesome and abundant but not to the degree noted in the Melanesian Islands. The numerous centipedes and scorpions are not dangerous, although their bite may be painful. There are no tarantulas or other dangerous spiders.

There are no indigenous quadrupeds in Micronesia. The only native mammals are two species of bats, the large fruit-eating "flying fox," called *fanibi* by the people of Guam, and another small insectivorous species. The *fanibi* flies about in the daytime, flapping its wings slowly like a crow. It has a disagreeable musky odor, but this leaves it when the skin is removed, and the natives sometimes eat it. The flesh is tough, but not unsavory. The principal fruits eaten by it are guavas, fertile breadfruit, the drupes of the fragrant screw pine, and custard apples. This species occurs on the Micronesian high islands. The smaller insectivorous bat is nocturnal in its habits, and flutters about very much like our own common species. It remains in caves during the day and ventures forth at twilight.

The brown rat was probably introduced through the agency of ships. It is very abundant and is a great pest, especially in plantations. It destroys young coconuts, ascending the trees and often making its nest there. The common mouse, also introduced, apparently causes little harm.

An introduced deer causes great damage to the crops of the natives. It was brought to the island of Guam by Don Mariano Tobias, who was governor of the Marianas from 1771 to 1774. Its flesh has a fine venison flavor and is a favorite food staple of the natives, who hunt the animal with dogs and guns, often burning great stretches of sword grass in which it hides. These animals often make raids upon the garden patches of the natives at night and eat the melons and other succulent vegetables cultivated there. During the rutting season the honking cries of the fighting bucks are heard at night especially when the moon is full.

The water buffalo, cattle, horses, mules, pigs, goats, cats, and dogs have been introduced. In the Marianas the buffalo are used for carrying burdens, drawing carts, and for plowing rice, just as in the Philippines.

Goats are not plentiful. The wild hogs that roam the forests live on fallen wild breadfruit and various roots. It is interesting to note that they eat the exceedingly acrid rootstocks that grow wild in the forests. Dogs are pests in the villages. They are not well cared for, as a rule, and



PLATE 6

Left: Girls in native dress, Taritari atoll, Gilbert Islands.

Right: Men in native dress of plaited pandanus, Taritari atoll, Gilbert Islands.





PLATE 7

Upper: Marshall Islanders in outrigger canoe sailing on starboard tack in Jaluit Lagoon brailing up to "spill" the wind, which is too fresh. The lateen sail is of strips of plaited pandanus.

Lower: Detail of outrigger housing. The Marshall Islander balances the pull of the wind on the sail with his weight on the platform of the outrigger.





PLATE 8

Upper: Native house with thatched walls and roof; mother and children in foreground. Rongelab atoll, Marshall Islands.

Lower: House and family of Chief Nakirora, Kiwa village, Taritari atoll, Gilbert Islands.





PLATE 9

Upper: Typical house with thatched roof, walls of removable matting, and elevated floor providing air space. Ellice Islands.

Lower: Group of women and children of Fongafale village, Funafuti atoll, Ellice Islands. The Ellice Islanders are predominantly Polynesian.



get their living by foraging. Cats have gone wild. Dogs and cats are fed coconuts when other food is not available.

PATTERNS OF CULTURE

Subsistence.—Slender resources face the Micronesian. Practically no soil covers the coral, and the inhospitable sand will grow few plants. The staple food, the coconut, grows best near the sea and on low land. It bears relatively few small nuts as compared to its productivity in Melanesia but supplies, through a cut flower stalk, a steady drip of nutritious sap. Its trunk is used in house construction. Its leaves are woven into mats and baskets and into the thatch of the house roof; the husk fiber serves for cordage and textiles. The scarcity of fresh water makes the water found in green coconuts especially desirable. Ripe nuts provide a juice which is used to protect the skin against salt sea water. The nuts are husked with a pointed spike, and the meat is grated with a rough piece of coral fastened to an arm of a stool. The fine scrapings are then diluted with water to a creamy paste and consumed with fish. To obtain the oil of the coconut, the grated nut is placed in a wooden bowl and exposed to the sunlight. The oil collects in the bottom of the bowl. The sweet and slightly acid sap of the coconut tree is collected by tapping or cutting the end of a flower bud. In the Pelews and the Gilberts the sap is boiled until it becomes a thick, sweet syrup. Fermentation otherwise sets in rapidly and the sap becomes intoxicating. The lore of the coconut is widespread throughout Micronesia and Melanesia.

The pandanus, where enough soil exists so that it can be grown, is the second most important plant. It belongs to the screw pine family and is not a palm. Its fruit provides a not unpalatable food; its leaves are used for fiber and thatch covering; and its branches supply timber for canoe outriggers and other light woodwork. The fruit of the pandanus is a staple food in the Micronesian islands, particularly in the Marshalls and Gilberts, and is preserved for use as sea stock by the bold canoe rovers of the two archipelagoes. The drupes are separated, dried, and pounded into a dust resembling snuff. This dust is exposed to the sun until a sweet juice exudes, rendering it sticky, after which it is rolled into broad, flat cakes. These are rolled up and tightly wrapped round with dried leaves and sennit, preserving them from injury by salt water.

Breadfruit and other plants that thrive in the high Melanesian islands grow abundantly in those Micronesian islands that are of volcanic formation such as the Marianas and Yap, Ponape, and Kusaie in the Carolines. Breadfruit and bananas, both staples of Micronesia, require a good soil

and cannot thrive on most of the coral atolls. In the Gilberts the bread-fruit tree culture involves the manufacture of soil produced by the mixing of powdered pumice (a highly vesicular volcanic glass) with what little sandy soil is available. Depredations of pigs are harmful to the tender trees. The fruit of this tree is a spherical, yellowish-green ball resembling the Osage orange but much larger. It cannot be eaten raw and is usually baked.

Taro (*Colocasia esculenta*) must be carefully tended to produce a crop in the Gilberts and other Micronesian coral islands. Trenches are dug in depressions in the sand, and the taro shoots are planted in those trenches which are moist enough to grow a crop. In the Pelews, yams are cultivated in swampy lands. Arrowroot is grown in the northern Marshalls, although this plant is supposed to have been introduced from America. The root is grated and squeezed, passed through a sieve and washed, after which the remaining pulp—a tasteless powder—is mixed with oil from ripe coconuts and cooked with hot stones. Prepared in this manner, the jellylike substance has a sweetish taste, much appreciated for use at feasts.

The preparation and ceremonial drinking of kava, made by crushing the root of a pepper (*Piper methysticum*), appears to have been limited to the islands of Ponape and Kusaie in the eastern Carolines. The concoction tastes like soapsuds and is mildly intoxicating. A few Europeans have learned to like it.

The chewing of the betel is characteristic in the Pelews, the Marianas, and the Carolines. The quid is prepared by placing a slice of the areca palm nut in a leaf of the pepper plant, together with lime ladled with a lime spatula from a gourd container. It is a mild narcotic, colors the saliva red and increases its flow.

Wild chickens are found in the Pelew Islands and in the Gilberts but are not hunted. The frigate bird is captured by the Gilbert Islanders by means of the bird bola—an oblong piece of stone, or worked fragment of shell of the giant clam (*Tridacna*), attached to a long plaited cord and looped at the other end about the finger of the hunter. A tame frigate bird serves as a lure. This is considered the sport of chiefs who retain special bird-catchers. In a limited way this bird is used as a carrier of messages, like the carrier pigeon.

There are on all inhabited islands a few pigs and chickens. Rats, which are plentiful, are eaten.

Implements, as well as fishhooks, are derived from sea products in Micronesia. Slender adzes are contrived by grinding down large specimens of the auger shell (*Terebra*), while larger adzes are made from the thick

shell of the giant clam (*Tridacna*). Hoes and scrapers are often made of turtle bone. In the Carolines a short-handled hoe with a blade of tortoise shell is the characteristic tool, while in the Gilberts wooden spades are used to work the shallow sandy soil. In the Mariana Islands, numerous types of metal tools were introduced from the Philippines replacing native forms of Micronesian knives and cutting tools of shell and bamboo.

The Micronesian finds the sea a generous provider. Squid, crabs, and shellfish haunt the innumerable cracks and crannies of the reef, and fish abound in the sheltered waters of the lagoon. Fish and mollusks are eaten raw.

Fishing is the chief activity of the atoll dwellers, and lines, nets, sinkers, and hooks are inevitably prominent in any display of Micronesian arts and crafts. Sennit fiber derived from the spathe of the coconut tree and pandanus-fiber lines can be made in any quantity, but as stone, bone, and wood are scarce except on the high islands, most hooks are made of molluscan sea shell or of turtle shell. The commonest hook has a carved shell shank. Open-sea fishing is for bonito and similar fish, while flying fish are netted from canoes by torchlight at night. Torches of candlewood nuts are used in all the islands where the tree will grow. The nuts are baked, and the nut kernels threaded on a midrib of a coconut leaflet. They burn with a smoky, flickering flame. The light requires constant tending since the charred cinder of a burned nut has to be removed when the nut below begins to burn.

In the Carolines and Gilberts fish weirs of coral rock and cane are built and the fish herded into them at high tide. Pools formed by the tides, caves in reefs, and other confined waters are poisoned with poisonous plants. Although the poison stupefies the fish, which float up to the surface, it does not spoil them for use as food. The Gilbert Islanders catch eels with a looped snare attached to a pole. As in Melanesia, the spearing of fish with a trident spear is a common practice, and at night fish are lured to the surface with torches. Fish nets and seines are also used. The fishhook used by the Caroline Islander has a shank cut from the shell of the abalone, with a barb of tortoise shell. A special kind of fishhook with narrow opening and a small, recurved bone barb is used to catch the *Ruvettus*, a large pelagic mackerel.

The shark is a favorite food, much preferred to the myriads of other fish and mollusks available. The tiger shark is sometimes sought and killed by a swimming native armed with no other weapon than a knife or a spear.

To aid the fisherman magic is invoked in the form of pairs of fish

carved from stone, one of which is buried and the other exposed. If the catch is poor, the carving used as a lure is then buried and the companion carving exhumed. The South Sea Islander is a great believer in luck, either good or bad. In Yap, the westernmost of the Carolines, fishermen are ceremonially isolated during the fishing expedition.

The Gilbert Islander is not only a good fisherman but a master sailor. He knows the ocean currents, the winds, and the stars. He knows the constellations that are visible from the Gilbert Islands and has plotted the heavens in distances and angles as they appear to him from his native island. The Pleiades or the "Seven Sisters," Antares, and all the other principal stars are known in their relation to angular distances and declination north or south of the star Rigel. Before a student navigator in the Gilberts is permitted to identify a star in its position in the heavens, he has to memorize a long list of familiar stars and constellations and to be able to indicate the relative positions as they might appear when observed at sunrise or at sunset at any given season of the year when sighted through the rafter and eaves in the thatched roof of the community house. The pupil is next instructed in the plotting of courses by the stars observable on a voyage to a given distant island.

Today the Marshall Islanders are expert builders of canoes and boats, and in the past they were clever and daring navigators. They build good-sized trading schooners of European model, as well constructed as those of foreign origin. As a result the old-time great outriggers are no longer built; only paddling outrigger dugouts and medium-sized sailing canoes for fishing and coastwise trips have survived.

Every chief and sea pilot possessed elaborate charts based upon his own experience and on knowledge handed down or gained from others. These sea charts are made with thin strips of the midrib of the leaflets of the coconut, arranged on a frame usually rectangular in shape. The knowledge they record is indicated by the arrangement of the leaf strips relative to one another and by the forms given to them by bending and crossing. Curved strips indicate the altered direction taken by ocean swells when deflected by the presence of an island; their intersections are nodes where these meet and tend to produce a confused sea. These "charts" are never made to scale and are, in fact, little more than mnemonic devices for the use of their owner.

Double canoes, which are much used in Polynesia, are unknown in Micronesia except on Truk Island of the Carolines. Sails were formerly commonly made of pandanus matting, although in the eastern Micronesian islands they were of woven cloth. The sail is of the lateen type,

triangular in section with yards at both sides and suspended from the masthead. Its forward end, where the two yards join, rests on the deck at the bow. Tacking is managed by slacking off the sail and carrying the yard ends bodily from the bow to the stern, where they are again fastened. The stern now becomes the bow, since both ends of the vessel are similar. Micronesians can sail close to the wind with this sail manipulation. The shallow draft of the canoe combined with the narrow beam makes this type of boat a good sailing vessel.

Native canoes and sailing vessels have no metal in their construction and are built up of planks lashed together with coconut-fiber cord. They could not be other than frail, but their builders are not afraid to set a large sail and travel long distances in the open sea. An outrigger float serves as a stabilizer, and the sail must be kept trimmed and just so full of wind as to heel the boat to leeward so that the outrigger float is poised just above the water. One sailor is assigned to control the position of the outrigger float; it is his duty to throw his weight on the outrigger if it rises too high. For this purpose the Micronesian sailing canoe has a platform built over the outrigger supports.

Shelter.—Houses are always rectangular, of wood-and-thatch construction, and are practically all roof, with very high, steep gables reaching close to the ground. Decoration is applied in the form of ornamental plaited lashing, though in the Pelews and the western high islands, which have sizable trees, some of the timbers have human effigy carvings.

In contrast with Melanesia, where houses are built flush with the ground, Micronesian house builders elevate their structures on a raised platform. In the Carolines, stone house-platforms 3 feet high are constructed. Thick-walled enclosures made of large worked basaltic stones are found buried in the jungle on Yap Island in the western Carolines, while on Ponape in the eastern Carolines, house construction includes platforms and wells. On Guam, in the Marianas, isolated stone pillars capped by large mushroom-head stones remain as the mute reminders of the use of stone house-posts. There is no recollection or native tradition regarding this now abandoned type of house architecture. Although no metal nails are used, great care is shown in the fitting of the timbers and in the laying of the thatch. Lashings of braided coconut fiber hold the timbers firm. Flooring of split bamboo planking characterizes the house of the Pelew Islander, and sliding shutters that can be removed form the wall coverings. On Ponape, the walls are of cane or reeds. On Kusaie, of the eastern Carolines, as well as in the Marshall Islands, a saddle-shaped roof is preferred, similar to that built by certain Indonesian and southeastern Asiatic peoples.

The council house in Micronesia is narrow but may extend 60 to 100 feet in length. These houses are the sleeping quarters of the unmarried men and are taboo to women. In the Pelews, the chief sits on a raised platform at one end of the house or council chamber, while long benches extend along the walls. Ordinary dwellings have numerous partitions forming rooms.

Except for floor matting of strips of pandanus leaves, which are made pliable by steeping in salt water, the rooms are unfurnished. Personal belongings, baskets, and coverings are piled on the floor matting. Natives of the island of Ponape, as in Polynesia, sleep on a pillow cut from a bole of the pandanus. On Guam, Filipino types of beds, low stools, and tables have been introduced.

Clothing and bodily adornment.—In the Pelews, men formerly wore no clothing; women continue to wear a short skirt of coconut fiber tied about the waist with a string. In the Carolines, boys, as they gradually become accepted into the fellowship of adult males, are permitted to wear at first one loincloth, later, two. The fully initiated adult man wears a loincloth, then over this a strip of pandanus leaves and grass, also a bunch of the same material stained red which is permitted to hang down in front over the loincloth. On Yap, in the western Carolines, women wear a skirt of leaves reaching to the ankles, but on Ponape a knee-length skirt is worn. In the Marshalls, thick bunches of shredded bark are connected with a strip of matting passed between the legs. Women wear two woven pandanus-mat skirts, one in front and another behind. In the Gilberts, men wear a pandanus-mat kilt, women a short skirt of grass, bark, or coconut leaves. Upper garments are practically unknown in Micronesia. Tapa is little used in Micronesia, as the paper mulberry, from the inner bark of which the tapa is obtained, does not thrive on these wind-blown islands.

Cloth is woven on small looms in the Caroline Islands, also on Ontong Java, Santa Cruz, and other islands along the Micronesian-Melanesian margin where contacts were early made between the two island cultures.

Tattooing is done with carbon as a pigment. Needles of bird or human bone set in handles somewhat like miniature adzes are dipped in carbon obtained from charred coconut husks and driven into the skin with a blow. Since the practice is painful, the work is done a little at a time. In the Pelews, both sexes are tattooed on the body; in the Carolines arms and legs only are so decorated. In the Marshalls tattooing is a mark of rank, and commoners are not permitted to have their cheeks tattooed. Slaves, wherever this population class existed throughout Micronesia,

were not tattooed. In the Gilberts, as formerly in Fiji and as is the custom in the Melanesian islands, cicatrization, or the raising of scar tissue is practiced. Women in the Gilberts are so scarred by burning. Other forms of bodily mutilation of sporadic occurrence in Melanesia, such as deformation of the heads of infants, or circumcision, are not recorded from Micronesia, although the ear lobes are pierced. In the Carolines the lobe is stretched with rolls of leaves to ever increasing size, while in Ruk and Mortlock of the same island chain heavy ornaments are inserted. The pierced ear lobe may become so extended as to become embarrassing to the individual when not filled with the large ornament that has caused its distention. To avoid snagging in the brush, it is tied into a knot. Pelew Islanders pierce the septum of the nose, Tasman Islanders and Ontong Javanese the nostril walls.

Micronesian women cut their hair to shoulder length; men tie their hair into a knot on top of the head. By way of contrast, the Fijian hairdress is a work of primitive art—Williams measured one head of hair, of which the circular mop was 5 feet in circumference. Micronesians generally have scraggly beards which they pluck with shell tweezers, the Gilbertese constituting an exception by permitting their beards to grow. The teeth of the shark are used as razors and knives for hair cutting.

As bodily ornamentation the Pelew Islanders smear themselves with oil and turmeric and wear wreaths of flowers in the hair. The Gilbertese make a hat woven from strips of pandanus leaf, whereas the men of Ruk, in the Carolines, wear a comb with a feather ornament. Flowers, and in the Pelews ornaments or rings of tortoise shell, are worn in the ear. Earrings and beads of shell are also worn by the men of Ruk and Mortland Islands, nose ornaments of tortoise shell by the men of Ontong Java. The Gilbert Islanders wear necklaces of teeth of slain enemies and also slender necklaces of plaited human hair. Cylindrical beads of shell are worn as necklaces throughout Micronesia.

Gorgetts or disklike ornaments of large *Conus* shells and bracelets cut from *Conus* or *Tridacna* shells complete the ensemble of bodily decoration. A girdle of coconut-fiber cord worn by the women of the Marshall Islands is a badge of rank, the length of the cord varying with the rank of the wearer.

Weapons.—The sling and the spear were the most important weapons of Micronesian peoples. In the Caroline island of Ponape the bow is used to a limited extent, the wooden arrows as well as spears being tipped with spines of the sting ray. The sling, an important weapon in the Carolines and the Marianas, was little used in the Gilberts. Sling-

stones are pointed egg-shape and strike point first like a bullet. The throwing stick, employed in the Pelews, is unknown elsewhere in Micronesia. Thrusting spears, as in Melanesia, also lances set with rows of shark teeth, were commonly employed in warfare. In the Gilberts barbs of sting ray spines and of shark's teeth were used. Clubs, though formerly made and used in most island groups, are not important in Micronesia.

Among the Micronesians, the Gilbertese seem to have been the most warlike. Their long, lacerating spears and swords were set with rows of shark teeth. Their defensive body armor consisted of a full suit of thick, closely plaited sennit fiber which in the back extended several inches above the top of the wearer's head. Such armor is now unknown although formerly it may have been used elsewhere in Micronesia. In combat each Gilbertese armor-clad warrior was supported by an attendant whose duty it was to ward off the opponent's blows.

The Pelew Islanders were at one time addicted to the taking of heads of enemies slain in battle, more as trophies than as a means of acquiring *mana* or supernatural power. Cannibalism was foreign to the Micronesian war-magic complex, though it cannot be denied that Gilbert Islanders ate the flesh of their slain enemies.

Music and games.—Although island peoples of the west Pacific love music, such appreciation did not lead to the invention of advanced types of musical instruments. Stringed instruments which are plucked like the pseudo-Hawaiian *ukulele*, or the Japanese *koto*, are unknown to the islands. Even the vented, transverse, mouth flute of bamboo, which is played throughout Polynesian islands of the eastern Pacific, appears in use only in Ponape, in the eastern Carolines. The Fijian nose flute, which is played by holding one end loosely against one nostril, the other nostril being closed with the thumb, is unknown to the Micronesians. Pipes of Pan and the bamboo jew's-harp, known to most Pacific peoples, are strangely silent in Micronesia. Drums, however, are played to accompany dancing. Large, cylindrical, upright drums with heads of shark or ray skin and resting on stone platforms as in Polynesian islands are played in the Marshall Islands and on Ponape, in the Carolines. The Marshall Islanders beat a small hourglass-shaped drum with skin heads. Drum signaling is not reported—instead, a rudely reshaped molluscan shell serves as a trumpet for signaling from village to village.

Games, other than those of children, partake of the nature of athletic sports. Competitive wrestling, boxing, swimming, diving, and ball games, are recorded. The ball used in the Gilberts is a stuffed cube of matting of pandanus strips. Goal lines are recognized.

Canoe racing, a popular sport in the Gilberts, is carried on in small canoes having an unusually large sail-area in proportion to size of hull.

Men are no longer permitted to fight but continue to talk endlessly about their former prowess. Mock battles are staged in war dances to the accompaniment of beating of huge drums. The dancer oils his body before the dance with an evil-smelling oil obtained from premasticated and fermented fish heads.

Position of women.—The former lowly position or regard in which women were held is betrayed in the Marshall Islands in odd linguistic uses of the prefix *li*, meaning woman. For example, the word *li-kam* means a lie, *li-porok*, curiosity, *li-pilipil*, favoritism.

Marriage customs vary greatly from island group to island group but in some of them marriage is arranged by the mother of the prospective husband, and the bride becomes a virtual slave to her mother-in-law. A man marries the sister of his ceremonial bride if she has no children. Also, if a man's brother dies, it becomes his duty to marry the brother's widow. Exchange of wives among other groups is arranged without ceremony. This practice is unlike the ritual exchange of wives among the Papuans and may be ascribed to the economic status of women as community drudges. On Ponape, in the Carolines, as an example, women make the mats which are universally in demand in daily life, plait the comparatively inartistic baskets, prepare the bundles of sago palm leaves for use as roof thatch, make the girdles or belts for the men, prepare the coconut and fish oil, prepare the cosmetic turmeric for the village dandy and others, carry water for cooking and drinking purposes, build the ovens and light the fires, prepare the food, and attend to all other household duties. They also assist in most outdoor labors such as the commercial marketing of copra. All their labor apparently is thoroughly enjoyed and partakes of the spirit of fun.

Infanticide is probably even more rare in Micronesia than in Melanesia, where it is resorted to only under exceptional circumstances.

In the Marshall and Caroline Islands descent is established through the mother, while in the Gilberts descent is said to be traced through the father.

Taboos.—The concept of something that is forbidden or taboo because it is sacred, therefore untouchable, has a practical mundane application in the traditional religious beliefs of the Micronesian. He does not go beyond using injunctions or temporary taboos, such as abstaining from eating certain foods or shunning the company of women before engaging in a fishing trip. A priest usually has charge of announcements regarding such

temporary taboos, most of which are well known through their traditional observance. Much more practical is the village chief who places a taboo on the use of coconuts until enough have been accumulated to buy a new canoe for community use in trading or fishing. The gardener, who is also practical in his religion, places a taboo sign—the carved figurine of a shark—in his garden to announce that the crop is under the protection of the shark totem, and that the vegetable thief will be eaten by a shark. Each clan has a recognized totem, a mythical animal or spirit protector.

Sorcery, magic, religion.—The same rules regarding protection of the individual against sorcery that prevail in parts of Melanesia have been observed in the Gilbert Islands. Personal leavings such as nail parings, hair clippings, faeces, and discarded garments are carefully burned or buried lest the sorcerer seek these as a medium for his nefarious practice of black magic. An expectant mother is particularly susceptible to the attack of the sorcerer, and such personal leavings must be carefully kept out of the clutches of the sorcerer. She has countermagic in an amulet consisting of a porpoise tooth and human hair, and charms are chanted to her at sunrise and sunset. Magic dietary regulations are numerous, and failure to observe them are believed to produce dire effects in the unborn child.

Although ancestor worship, which includes a form of veneration of the skulls of the departed ancestors, has practically vanished, the role of the sorcerer is still an active one. Every activity in daily life is hedged about with magical devices to insure success. To a certain extent the Christian prayer has taken the place of former heathen magic rites but has not entirely replaced them. Quite aside from this white magic practiced to insure protection of the individual, there still flourishes a form of black magic or "wishing to death," known in the Gilbert Islands as *wawi*. The sorcerer surreptitiously approaches the remains of a fire where the one to be wished to death has cooked a meal. He proceeds to steal the smoldering embers of the fire and recites his magic formula invoking the "Spirits of sickness, spirits of fear, and spirits of rottenness," to "stab him, pierce him!" The formula ends with the bald statement that the victim is dead. Sorcery in a lighter vein, such as the children's practice of putting the stars to bed at night, follows the formula:

Mr. Star, thou, the little one,
Wink once, wink twice.
Thee I have chosen: thou art sleepy!
Thou sleepest, Mr. Star, thou, the little one,
In a little cloud.
O-o-o-a-a-a! Sleep!

The soul of the dead goes to a paradise, which lies over the brim of the world toward the west in a submarine cavern beneath the colorful coral floor of the lagoon. There are, however, regulations to be observed to bring this about. The portal to paradise is guarded by a bird-headed woman who awaits the soul in midocean. If the dead does not have proper tattoo marks it cannot get safely past this guardian of the portals. Another sentinel, the watcher with the net, must be passed before the spirit of the dead may enter his paradise. If the individual during life had been guilty of treachery to his clan, the watcher with the net hurls the spirit into a pit where it becomes impaled on a wooden stick. If the individual record is clear, the watcher will remove or pull aside his net and smilingly permit the soul to pass on its way. As in Melanesia, the spirit world is well populated. The spirits of ancestors haunt the reefs, forest, and mountains. They are under the floor and in the roof thatch conspiring to punish the living for insufficient honor bestowed upon the dead.

Micronesian culture taken altogether is not as involved as is that of the larger Melanesian islands. This harmonizes with the restricted resources of the islands. Enterprise and ability are evident in the ingenuity and versatility which wring every possible use out of the limited resources the islands provide. There is less of elaborate feasting and organized ceremonial life than in Melanesia and a less developed expression of ritual in art and in the routine of daily life. There appears to have been no temple- or *marae*-building as in Polynesia. The numerous gods and lesser personages of the spirit world are not arranged in a definite hierarchy, as in Polynesia. No profound interpretative conception of the origin of earth and sky has been recorded. Micronesia has not, however, been studied by the social anthropologist as thoroughly as has Melanesia and Polynesia. Future investigations may disclose more precise relationship between Micronesia and the two other great cultural subdivisions of Oceania namely, Melanesia and Polynesia, and may also uncover anthropological and cultural origins in the Indonesian background.

The prevailing similarity in geographic features, flora and fauna throughout far-flung Micronesian atolls is disturbed almost solely by factors associated with the few volcanic high islands, namely, the Marianas, the Pelews, and Yap, Truk, Ponape, and Kusaie in the Carolines. It is erroneous to assume the existence of comparable racial and cultural uniformity. Unknown prehistoric peoples have, no doubt, passed through the area. Some of these peoples are presumably the historic and present-day neighbors of the Micronesians. This is inferred from the many sub-

areal racial and culture traits which link eastern Micronesia with Polynesia, southern Micronesia with Melanesia, and western Micronesia with the Philippine Islands and Indonesia. In this brief outline of Micronesian patterns of culture, an illusory impression of general cultural identity may be conveyed unless the individual culture trait is associated with a given island or archipelago. The Micronesian patchwork of borrowed and of uniquely developed individual culture traits is, however, firmly quilted into general patterns of island cultures which are briefly discussed in the following pages.

THE PELEW (PALAU) ISLANDS

The Pelews are the most westerly of the Micronesian islands. They form a compact chain of about 100 islands extending north to south and lie 500 miles east of the Philippines, but less than 250 miles north of western New Guinea. They were discovered supposedly by Villalobos in 1543, although the claim of discovery is also made for Sir Francis Drake in 1579. Along with other traditional lore associated with their early history is the statement that these islands received their original name "Palau," which is not a Micronesian word, from the Spanish. The intimation is that the word was originally spelled "Palos" which means "mast" in Spanish and that the islands were so named because the coconut trees growing wild upon the islands appeared when seen from a distance to be a large number of masts.

Although the Pelews are usually considered geographically as an independent archipelago, they are sometimes associated with the Carolines of which they form the extreme western outlying group. A barrier reef with many passages extends the entire length of the archipelago. The larger islands of the group are volcanic high islands with a fertile soil and covered with dense vegetation. The larger islands are named Babelthuop, Korrör, Urukapi, Irakong or Eil Malk, Pililiu, and in the extreme south N'yaur.

The native Micronesian population of the Pelew Islands suffered a tremendous decline within historic times. A century and a half ago it was estimated at 40,000; in 1875, it was 10,000. In 1916 the native population had shrunk to a total of but 4,880, and now many of the smaller islands are uninhabited. The Pelew Islands in prehistoric times must have witnessed some of the early dispersals of Indonesian peoples which later spread out fan-shape throughout the whole of Micronesia and Polynesia. Today the Micronesian peoples of the Pelews, Yap, and the western Carolines are physically more like their East Indian neighbors

than are those of the eastern Carolines. The average stature of the male Pelew Islander is 64 inches.

In a general way the culture traits of the Pelew Islanders are similar to those of the greater Micronesian area. There are, however, many individual trait differences. One of these, "the order of the bone," is noteworthy. As a symbol of rank chiefs and other men of influence of the Pelews wear armlets made of the atlas bone of the dugong—the East Indian manatee or sea cow. This bone, being difficult to procure, is considered especially valuable. The making of earthenware utensils for their own use is characteristic of the Pelew and western Caroline Islanders. In the eastern Carolines no pottery is made. On the whole it appears that there has been considerable borrowing in the Pelew Islands of Indonesian and Melanesian traits from the neighboring East Indian and outlying Papuan islands.

THE MARIANA ISLANDS

This group consists of 15 volcanic islands fringed with coral reefs extending roughly from 13° to 21° N. latitude, a distance of approximately 400 miles from north to south, and forms a link in the island chain extending southward from Tokyo to the Caroline Islands which parallel the Equator at right angles to the Marianas. In the order of their location from south to north, the Marianas include the following islands: Guam, which is much the largest, Rota, Aguijan, Tinian, Saipan, Farallon de Medinilla, Anatajan, Sariguan, Farallon de Torres, Guguan, Alamagan, Pagan, Arigan, Asuncion, and Uracas. Although successively named by Magellan in 1521 the *Islas de las Velas Latinas* (Isles of the Lateen Sails), and later *Ladrones* (Isles of Thieves), the islands in 1668 were officially named the Marianas in honor of Maria Anna of Austria, widow of Philip IV of Spain.

The group is situated in a latitude where the northeast trade winds and the monsoons meet; rainfall is, therefore, almost continuous and hurricanes are frequent. Earthquakes are common but not particularly destructive owing to the flexible type of native architecture.

Although the population of Guam under American occupation from 1898 to 1941 greatly increased from a low of 2,440 in the second half of the eighteenth century, several of the islands in the Japanese-controlled, mandated portion of the archipelago, remain unpopulated. During the last two decades a large number of Japanese have settled in the Marianas, including the Island of Guam.

Throughout the Marianas, under Spanish rule before 1898, the native

clan leaders, who held the responsibility for distributing land within their clan groups, became the possessors of colonial governmental authority with few restraints. This island totalitarianism had perhaps as much to do with the suppression of the rights and ultimate extinction of much of the native population as had the forced concentration of the old Chamorro stock within the Island of Guam under Spanish colonial administrators. The younger people today know nothing about their clan and care little for the clan system.

From the time of its colonization by the Jesuits in 1668 to 1898, Spain administered the Marianas, including the island of Guam, making of the area practically a closed Spanish sea. Early in the Spanish-American War the American cruiser *Charleston* entered the harbor of Guam. The Spanish officials, who did not know that Spain was at war with the United States, apologized for not answering the "salute," since they had no ammunition. At the close of the war the island of Guam was retained by the United States. In 1899 all the other islands of the Marianas and the Carolines were sold by Spain to Germany for \$4,500,000. After acquiring the remainder of the Marianas from Spain, Germany established the seat of government on the island of Saipan, 120 miles north of Guam.

Shortly after the outbreak of World War I in 1914, Japan took possession of the Caroline and Mariana Islands with the exception of the American-owned island of Guam. The League of Nations recognized this seizure and in 1920 mandated these islands to Japan. At the outbreak of World War II, in December 1941, Japan extended these seizures to the island of Guam, attacking and imprisoning the American marines, naval detachments, and labor forces stationed there. The significance of the Japanese pattern of politico-economic expansion is now clearly recognized.

The chief island of the Marianas proper, Saipan, under Japanese mandate, was closed to foreigners. The South Sea Bureau in Tokyo (Nanyo) had made it all but impossible for Americans to visit any of the Japanese mandated islands. Although Japan withdrew from the League of Nations, she did not relinquish the mandate. There is no record of any demand ever having been made by the League that nations withdrawing from the League surrender to it their assigned responsibilities, including mandated islands. The Japanese have developed Saipan into a sugar-producing island. The busy port of Garapan has primitive carts drawn by oxen cluttering up the streets alongside charcoal-burning automobiles.

During the 43 years of American occupation of Guam from 1898 to 1941 the mixed native Chamorro and old immigrant Filipino population

increased from 9,000 in 1900 to 22,000 in 1941, with a school attendance of 4,000 pupils. American standards of living took root, and a pleasing form of native Chamorro-Filipino-American civilization came into being, with Americanisms in the ascendancy. A money economy replaced the copra-barter economy; working for wages supplanted peonage.

Expert craftsmen were trained to work in the American naval establishments. These functioned along with traditional native farming and fishing industries. Hard-surfaced roads were built of locally quarried *casajo*. Throughout the years of American occupancy, Guam was held by the United States Navy as a closed port to foreign shipping and immigration, and plantations dependent on contract labor therefore did not develop. Guam, one of the most beautiful of all the islands of the western Pacific, became one of the cleanest. Without the fevered stimulus of foreign contract labor, considerable copra was nevertheless exported by the native Filipino-Chamorro people. The loyalty of the Chamorro to all that is American and that is "states-side" (pidgin English) resulted in a number of petitions to Congress requesting that the people of Guam be given the rights of American citizenship. The Chamorros, unlike the Filipinos, did not ask for independence.

It is to be regretted now that all 17 of the Marianas as well as the Carolines were not taken by the United States in 1898. The change from coal to oil burning made it less necessary to develop Guam as a coaling station than had originally been conjectured by Navy engineers. The extensive development of Pearl Harbor, in the Hawaiian Islands, and of Olongapo and Cavite, in the Philippine Islands, with regard to repair and drydock facilities further tended to lessen the supposed importance of Guam's harbor at Apra. The Washington Disarmament Conference in 1922, as a concession to Japan, is responsible for the removal of heavy armament which had been painstakingly placed at strategic points in 1917. By the year 1932 all American armament laboriously transported over mountain and through jungle had been removed.

It may be readily understood that once embarked on their enterprise of conquest after Pearl Harbor, the Japanese lost no time in overrunning defenseless Guam which they had long viewed with avarice from the Mariana island of Rota, 49 miles to the northeast. Ritidian Point, the northern tip of Guam, is visible in clear weather from Rota.

A large number of Tagalogs imported by Spain from the Philippines have intermarried with native Chamorros. Chamorro mestizos (mixed breed) are lighter in skin color than the Chamorros of unmixed blood. The women still dress in the long skirts and gauze balloon-sleeved *camisa* of the Tagalog woman of the nineteenth century.

In Saipan, as in Tinian, another of the Marianas, the remains of former stone houses of the Chamorro people contrast architecturally with the remaining old Spanish mission structures, but most of all with the long rows of flimsily constructed houses occupied by Japanese prostitutes, geishas, and laborers, together with their shops and Shinto temples.

The sacred houses once present in all the islands and the native Chamorro priesthood with its secret society, the *urito*y, have disappeared. Native religious beliefs have in larger part become syncretized with those of the historic religions brought to the islands from the Philippines and from Japan.

THE CAROLINE ISLANDS

The Caroline Islands lie east of the Pelew group from 2° to 12° N. latitude. They extend eastward 1,800 miles, from Yap (Ouap) to Kusaie (Ualan), which is nearest the Marshall group. The name comes from that given by the Spanish Admiral Lezcano to a large island in the group not now identified. The earliest account is by a Jesuit missionary, Juan Antonio Cantova, who visited portions of the group in 1721 and was killed at Mogmog 10 years later. The islands cover approximately 877 square miles distributed over nearly 50 groups, most of them atolls. In 1885 the German gunboat *Illis* took Yap, which Spain at once claimed, and her claim was sustained by the Pope, acting as arbitrator. After the Spanish-American War and the loss of Guam and the Philippines, Spain sold the entire group to Germany. The Carolines were seized from the Germans by the Japanese during World War I, and in 1920 mandated to them by the League of Nations. German missionaries had supplanted the Spanish mission fathers and were in turn, after 1914, replaced by Japanese missionaries of Shinto, Buddhist, even Christian religions. Consequently, while the children greet one in the morning with "Ohayo," the middle-aged say "Guten Morgen," and the aged courteously extend a greeting in the familiar Spanish "Buenos dias."

While the Marianas have a north-south trend, the Carolines have an east-west axis. Some of the many islands of the Caroline group are of volcanic origin and belong with the oceanic high islands. Here grow breadfruit and huge mango trees, the papaya and the introduced orange. The scent of the introduced flowering jasmine mingles with that of fermenting copra. Seasonal differences are not great, although the northeast trade winds blow for 6 months followed for 6 months by the southwest monsoon. This seasonal change is lacking in the eastern Carolines.



PLATE 10

Upper: "Flying foxes," a species of destructive fruit bat. The meat of this small, smelly mammal is eaten by Micronesians and Melanesians, who also use its fur for decorative purposes.

Lower: The breadfruit tree. Its globular, melon-shaped fruit, gathered just before it ripens, provides a starch food comparable to boiled potatoes. The South Sea Islander prefers to eat it as a pudding with the meat of the coconut. It is preserved by slicing and drying. Its fibrous inner bark provides a form of tapa cloth.





PLATE 11

Left: Food carriers
in Melanesian New
Guinea. Photograph
by Press Association,
Inc.

Right: Water car-
rier, the wife of a Mel-
anesian teacher, Port
Moresby, New Guinea.





PLATE 12

Upper: Native footbridge of three lashed logs near Buna, northeastern coast of New Guinea. The Melanesian ammunition carriers are dressed in modern shorts. Photograph by Press Association, Inc.

Lower: Dugout outrigger canoe of St. Matthias, northernmost island of the Bismarck Archipelago.





PLATE 13

Upper: Dugout canoe with built-up plank prow and stern, Malaita Island. The outrigger is not characteristic of the watercraft of the central and southern Solomon Islands. Note the decorative inlay in white on the prow.

Lower: War canoe of the island of New Georgia, central Solomons. The elaborate decorative inlay on elevated prow is in mother-of-pearl shells.

Photographs by Merl La Voy.



Ponape is a high island, the largest in the Japanese mandated area, covering about 130 square miles. The lagoon surrounding it, in turn rimmed by a reef, provides a ship basin. Harbor landings are cut into the island of Ponape itself, the most important of which, Jokaj, is a fortified islet 876 feet high in the lagoon. The Spaniards had made Ponape their capital in Micronesia. Since it has long been a crossroad of the western Pacific, the native population is through intermarriage a blend of Micronesians with Filipino, Polynesian, Melanesian, and Japanese.

In the Carolines, ancient stone platforms and images are found on Ponape and Kusaie. Quite aside from this resemblance to certain stone structures in the large Polynesian islands farther east, there are cultural and physical traces of culture migrations and racial admixtures with peoples from the Melanesian islands to the south, as well as from the islands of Malaysia, principally the Philippines. The physical appearance of the native population of the western Carolines reveals this admixture and indicates a degree of relationship with the Indonesian-Filipino. The average stature of the male Caroline Islander is 64.5 inches.

The Japanese base at Truk, in the eastern Carolines, includes a large number of coral islets surrounding a lagoon and belted by a white reef. The floor of the lagoon is covered with algae and coral, sea fan, red sea cucumbers, bright blue sea moss and oarweed, starfish and fish of many highly colored varieties. Sponges, variously hued geranium-scarlet, marigold-yellow, and green, decorate the bottom of the shallow water of the lagoon. In places, the bottom of the lagoon drops away to unknown depths, providing adequate space for shipping and fleet anchorage.

Shark fishing by the natives on the island of Truk is peculiar in that no bait is used. Fishing is carried on over the reef on the ocean side where the bottom descends rapidly, and where sharks lay in wait for food that may come their way. Fishermen carry a rattle with which they strike the sides of the boat to attract the shark. When the killer is attracted near enough to the boat, it is harpooned. Bonito are lured in the same manner.

At the western end of the Carolines, midway between the Pelews and the Marianas, about 500 miles southwest of Guam, lies the island of Yap, the island of stone money. Of all the strange currencies used for the purpose of gaining prestige and in barter, the calcite disks brought to the island of Yap from the 300-mile distant Pelews are perhaps the most unique. Part of the value, of course, lies in the difficulty of transporting these heavy stone disks, ranging from 6 inches to 12 feet in diameter, in frail outrigger canoes all the way from the Pelews. Calcite is not found

on Yap. If it were, then of course the value of this strange currency would no doubt soon disappear.

Yap actually consists of three islands plus a number of islets all located as parts of an encircling band around a central lagoon 19 miles in diameter. A peculiar form of communal slavery exists in Yap, the slaves being the common property of the free who, under the old tribal organization, rule the community through headmen or chiefs. Yap is really the westernmost extension of the Caroline Island archipelago.

During the period of the Japanese mandate, from 1920 to 1938, there has been a remarkable increase of 50 percent in the native population of the eastern Carolines, the greatest increase being on Ponape, contrasting with a decrease of 30 percent in the western Carolines, with the highest rate of decrease on the island of Yap.

THE MARSHALL ISLANDS

The Marshall Islands include two chains of picturesque coral atolls, the Ralik and the Ratak, which extend from northwest to southeast between 4° and 15° N. latitude. The Marshalls lie east of the Carolines, midway between Hawaii and New Guinea. The eastern chain, the Ratak, has 16 atolls; the western, the Ralik, 18. The atoll of Jaluit, which includes 50 islets, is the trade center for the archipelago, and lies in the latter chain. Its native Micronesian population exceeds 1,000. A native village, Jabor, lies at the north and widest end of the island. Owing to the number of trading vessels stopping at this place, the natives have become sophisticated and have lost much of their own culture. One small series of physical measurements of natives of Jaluit is known. These measurements give an average stature for males of 65 inches and for females, 58.3 inches. In their slightly greater stature, lighter skin color, straight to wavy hair, and narrower nose, the Marshall Islanders, like other Micronesians, differ physically from the shorter-statured, darker-skinned, and frizzly-haired Melanesians.

The Spanish discoverer of the Marshall group, de Saavedra, in the early sixteenth century, named them *Los Pintados* after observing the remarkable tattooed bodies of their native inhabitants. The entire archipelago was discovered piecemeal, Jaluit, for example, not being known to Europeans until 1809, when it was discovered by the English. The islands derive their name from the British Captain Marshall, who explored them in 1788.

Wotje, one of the most important atolls of the Ratak chain, con-

sists of 65 islets surrounding an oval-shaped lagoon. The Marshalls, of all the atoll archipelagoes in Micronesia, are the nearest to the Hawaiian Islands.

THE GILBERT ISLANDS

The Gilberts in their eastern position in the Micronesian chain of gemlike coral islands consist of 16 coral atolls, the total area of which is only 166 square miles. These islands, never more than 20 feet above sea level and never more than a few miles across, resemble long ribbons of coral rock from 10 to 50 miles long. They have had no part in American interests in the Pacific since the whaling fleet became a thing of the past. In 1841 two ships of the United States Exploring Expedition under Lieutenant, later Captain, Charles Wilkes of the United States Navy, stopped there. Wilkes made a careful survey of the islands, a survey on which British admiralty charts are based.

The soil of the coral islands is scant and sandy, although it supports a dense mat of coconut and pandanus trees. The root crops so characteristic of the food economy of the larger volcanic islands of the eastern Carolines do not thrive here, although an inferior taro is cultivated. As in other small consolidated coral islands, the scenery includes no mountains or streams, but this lack is more than counterbalanced by the artistic and pleasing coloring of the water in the lagoons and among the reefs. Light and shade play in the latticed thatch of the coconut palms which overhang and crowd the sandy beach. The deep waters off the reef in the light of the tropical sun are a deep cobalt blue. Over the shallow reefs the water becomes a rich purple, and various shades of emerald reflect from the shallow waters of the lagoon. Twenty-eight thousand natives crowd these coral atolls, which constitute one of the few island groups in the western Pacific where native depopulation is not a problem. The native population has increased to such an extent that during the years just before the outbreak of World War II about 2,000 Gilbertese were transported to the Phoenix Islands, a similar group of islands situated 300 miles to the east. All the land is owned and occupied by native Micronesians. There are, consequently, no large coconut plantations such as have been developed in the larger sparsely populated Melanesian islands. The administrative capital is on Ocean Island, which, like Nauru Island, has extensive phosphate deposits.

Nauru, 1,000 miles south of the great Japanese naval base at Truk in the Carolines, serves as an outer bastion of Truk's defenses, but far more important, it produces about one-twelfth of the world's output of phosphates and thus is of tremendous importance to Japan not only for

fertilizer but for ammunition. Despite its small size, Nauru has a native population of 1,680.

The important product of the 16 islands of the Gilberts is copra, the dried meat of the coconut which enters commerce and ultimately is utilized in the manufacture of soap, food for animals, oleomargarine, and candles.

The Gilberts have been a British protectorate since 1892. In 1900 Ocean Island was added to the protectorate which was annexed as a Crown colony in 1915. A Resident Commissioner was responsible to the British High Commissioner for the western Pacific, for which the seat of government was at Suva, Fiji.

The skin color of the Gilbertese is a light brown, contrasting with the several shades of brown to black of the Melanesians and the light copper color of the Polynesians. The male Gilbert Islander has an average stature of 66.4 inches, considerably taller than the average Melanesian, and is leaner than the neighboring Ellice Islander who is inclined to corpulence. The Gilbertese, like all Micronesians, are traditionally careful of the body. A peculiar custom of bleaching the skin is practiced by the women and girls, who shut themselves up in screened houses out of the sunlight to improve their complexions. The body is massaged with coconut oil and covered over with juice pressed from the meat of the coconut. The resultant bleach is much admired. The native dress of the women, a grass skirt extending from the waist to the knee, has been for the most part replaced by the "Mother Hubbard," which is made of imported cotton print cloth. Older men still dress in finely textured bark matting which is wound about the waist and fastened with a girdle of plaited human hair. The younger men wear a loincloth or kilt of cotton print.

The houses of the Gilbertese are simple affairs, consisting essentially of a thatched roof resting on corner posts about 6 feet above the ground. An elevated floor covered with midribs of coconut leaves provides an air space of a few feet under the house, and mat screens of coconut leaves are let down as desired to form walls. The leaf of the pandanus provides material for roof thatch, while rafters and support posts are obtained from the same plant. Fiber for lashing the various parts together is obtained from the coconut palm. Houses are lined in a row along the beach, forming the small villages in which the Gilbertese dwell. In the center of the village is the large clubhouse, more than 100 feet long and almost equally as wide. The ridge pole of the roof may be as high as 60 feet above the ground, and from it the roof slopes to within a few feet from the ground so that one must stoop to enter.

A taboo of sacredness surrounds the community house of a typical Gilbert Island village. It not only has its place as a community center for the planning of the ceremonial life of the village, but is itself a part of the sacred possessions of the village clan. Missionary effort has been successful in the Gilberts, and the majority of the native population considers itself Christian. The Gilbertese are also 70 percent literate.

THE ELLICE ISLANDS

The Ellice group consists of nine low atolls of which eight are inhabited. The group extends for a distance of about 360 miles from northwest to southeast and lies entirely south of the Equator. It was visited by Maurelle in 1781, and by Captain de Peyster in 1819.

The Ellice Islands have a native population of little more than 4,000. The natives are mostly Polynesian, but Micronesians from the Gilbert Islands colonized the Ellice group in part, particularly the island of Nui. The people are lighter in color and larger than the Gilbertese and use a Samoan-type language. The generally high opinion of the Ellice natives as to intelligence, friendliness, and physical strength has been corroborated by first-hand reports from the American landing at Funafuti. Normally, the Ellice Islanders make their living chiefly by fishing and farming and the export of copra. Under British administration all coconut plantations were limited to native ownership.

Native commercial enterprise and initiative is noted in the Ellice Islanders' successful operation of producers' cooperative trading societies. These collect and market the copra produced on the land of the members; they also retail trade goods in exchange. These societies have succeeded in ousting the trader from nearly every island of the group. The social climber of the village has in the cooperative trading society a medium for attaining the role of leadership and usually succeeds in getting himself elected a member of the various committees dealing with its activities.

The usual type of diseases found elsewhere in Micronesia are for the most part prevalent in the Ellices. Lambert found 52 percent of the population to be infected with hookworm. This compares very unfavorably with the 9 percent in the nearby Gilberts. A second disease scourge is filariasis which produces elephantiasis and which is carried by certain species of mosquito. This disease has not been brought under control. The Ellice group is participating in the program of the Central Medical School by sending a quota of picked young men to Suva, the capital of the Fijis, for training as medical assistants and practitioners. There has also been developed a course of instruction for student nurses. Even a

maternity center has been established, and child welfare work has been undertaken.

The Ellice Islanders are 94 percent literate. They are said to hate illiteracy just as they hate a dirty house or a fractious child. The community brings pressure to bear upon any individual who cannot read or write. Secondary school training has been provided for a limited number of boys in the Gilbert and Ellice groups. The British Colonial Administration hoped thereby to obtain a suitable number of native officials.

The American marines in April 1943 set up military "housekeeping" at Funafuti in the Ellice Islands, next door to the Japanese-held positions in the Gilbert group. The important Japanese base on Nauru Island, mentioned in the section on the Gilberts, is about 1,000 miles from Funafuti.

Funafuti atoll lies somewhat south of the center of the scattered Ellice group and is considered the best natural site for general military use. It comprises some 30 coral islets surrounding a lagoon that is more than 13 miles long and 10 miles wide at its broadest central expanse. The lagoon is deep enough for oceangoing vessels and offers good landing facilities for seaplanes. There are several safe ship entrances, although peace-time mariners were warned of hazardous shallows and coral patches within. The largest island in the Funafuti atoll, bearing the same name, is a slim, boomerang-shaped elbow of land nearly 7 miles long and one-third of a mile across at its widest part. Its prewar population was about 350 natives.

Like the rest of the Ellice group, Funafuti is low lying and thickly covered by coconut palms, many of which rise to 60 to 80 feet. Light reef-mud roads rim the islands. The most comfortable season of the year is from March to October when the northeasterly trade winds blow.

MELANESIA

GEOGRAPHY

New Guinea and the islands of Melanesia are thought to have been at one time in close relation with continental land masses joined to the Asiatic mainland. The island arc of which New Guinea forms the major portion is linked through the 80-odd Louisiade islands off its southeastern coast with a submerged mountain ridge and the great island of New Caledonia, also with the outlying Loyalty Islands not far from its eastern coast line. As one proceeds eastward in Melanesia it is noted that island groups show fewer traces of previous continental land connection, or mountain folding. Finally the coral atolls are all that remain.

There is a general geological resemblance between New Caledonia and New Zealand. Old rock formations in New Caledonia consist of slate and schist, with basic volcanic, granitic, and serpentine intrusions. Within the slate are limestones containing fossil brachiopods, providing abundant evidence of submergence. Veins of nickel occur along with numerous other minerals. A barrier reef and lagoon encircle the entire island.

Another island arc with its connecting submarine mountain ridge parallels the New Guinea-New Caledonia arc on the north and includes great



FIG. 2.—Map of Melanesia.

island archipelagoes extending from the Admiralty Islands, New Ireland, and New Britain on the northwest, through the Solomons, Santa Cruz, and the New Hebrides to the southeast. New Ireland is volcanic but also has ancient sedimentary rocks, and certain limestones appearing in New Ireland continue along the island chain of this arc all the way to the New Hebrides. New Britain and the Admiralty Islands are also volcanic but have much recent outlying coral structure.

In Melanesia, volcanic high islands occur in much greater number than the coral atolls or low islands. In fact, in the New Hebrides, the Solomons, and New Britain volcanoes are still active. Recent disastrous volcanic

eruptions occurred within this area on the island of New Britain in 1897 and in 1937, destroying most of the surrounding vegetation and covering the island capital, Rabaul, with a thick layer of ash and pumice, destroying ships in the harbor of Blanche Bay, and necessitating the removal of the capital to Lae on Huon Gulf of the north coast of New Guinea.

Ontong Java, or Lord Howe Island, located well within the Melanesian area north of the Solomon Islands, is one of the most perfect coral atolls known, its enclosed lagoon and surrounding islands with the outlying barrier reef forming a perfect oval.

In the British protectorate of the South Solomons are numerous formerly volcanic islands situated irregularly and at some distance from the main group of the Solomons. These include the densely wooded Swallow and Santa Cruz Islands, the native flora and fauna of which are very similar to those of the nearby Solomon Islands. Other outlying islands, such as Rennell, Ticopia, and Amida are of particular interest to the ethnologist since they are inhabited by Polynesians and constitute the marginal fringe of the Melanesian area.

The flora of the fertile volcanic island valleys differs decidedly from the scanty vegetation of the coral islands which have been built up on isolated coral reefs or as atolls with enclosed lagoon. Besides the plants introduced by human immigrants, many other species have been brought in by migratory birds, ocean currents, and prevailing winds, sometimes from great distances. The pandanus, or screw pine, and the coconut palm are the most characteristic plants to be found on the low islands. Wind-borne spores of mosses and ferns, winged seeds of trees and other plants, and bird-carried fruit seeds, on the other hand, have found lodgment in the fertile valleys of the high volcanic islands. These methods of dispersal may explain why little difference exists in the volcanic islands between vegetation of the coastal plain and that of the mountainous interior. The regularly spaced rows of coconut trees covering coastal plains of embattled New Guinea and Guadalcanal in the Solomons are commercial plantings for the production of copra. In the dense jungle the introduced elephant-eared taro, banana plants, the papaya, the palms of many species mingle with indigenous growth. The elevated hills, mountain slopes and valleys have a semitropical vegetation. To what extent pine forests and other plants of the Temperate Zone are present on the higher peaks above an altitude of 6,000 feet has not been recorded. The extreme heights of Papuan New Guinea with their perpetually ice- and snow-capped peaks are not found even in the more elevated portions of other large Melanesian islands.

The fauna is much poorer in forms than is plant life in Melanesian and Micronesian islands. Even the pig, which is universal and runs wild, was introduced either by immigrating Melanese or within historic times. Capt. James Cook in 1774 is supposed to have left a limited amount of breeding stock on several of the islands he visited. It is, however, more plausible to assume that the pigs introduced on oceanic islands within historic times were brought by the Spaniards, who explored the Solomons and colonized Santa Cruz in Melanesia and the Carolines in Micronesia in the sixteenth century, 200 years before the exploratory voyages of Captain Cook.

The indigenous land fauna is poor in mammals. Several species of rats and of bats, or "flying foxes," occur generally throughout the area. Species of kangaroo, cuscus, and other characteristic Australian mammals are found mostly in New Guinea. Cattle and horses were introduced within historic times on most of the larger islands but have increased only when, as in New Caledonia, they were permitted to run wild. The relatively open range available for grazing in New Caledonia has provided abundant food for both introduced deer and cattle.

New Guinea has more than 600 species of birds. Characteristic are MacGregor's bird of paradise, with its orange-colored wattles resembling ears, brilliantly colored parrots, crested white cockatoos, and numerous black and orange colored birds. Many species of birds in New Guinea are not found in Australia where vegetation is sparse and climatic conditions are different from those of the New Guinea rain forests. Fruit-eating pigeons, which are numerous, have presumably been responsible for the distribution of fruit-bearing plants on many of the islands. In the Solomons and New Hebrides, as well as in New Guinea, species of flightless birds are numerous, including the large and vicious cassowary which was formerly supposed by many Americans to have a special predilection for eating missionaries. The range of the kagu, a flightless bird, is restricted to the island of New Caledonia.

The distribution of insect life throughout Melanesia is very uneven, the malaria-carrying anopheles mosquito, for example, occurring on all the islands except New Caledonia. Myriads of ants and large butterflies are characteristic. But little systematic study has been made of the insects of the area except in Fiji and the Solomons.

The vivid coloration of many species of fish characterizes the marine fauna of the area. Native statements about certain species of fish being poisonous when used as food during certain seasons have not been thoroughly examined. As in Indonesia, the sea mammal—the dugong—

is common, particularly in northern Melanesia. A sea worm known as the *balolo*, which comes to the surface of the water in the Fijian area for 2 days each year and propagates itself by division, is a favorite food of the natives, who can through long observation predict accurately when it will appear. Reptiles including the turtle, also the tortoise, noted for its amber shell, are abundant, as are also species of nonpoisonous lizards. Snakes of several poisonous species and crocodiles frequent coastal waters of the larger islands.

Lobster fishing on the coral reefs of New Caledonia introduces a novel bait in the form of a dead squid which is attached to a pole and moved about in the depressions within the coral reefs. The lobsters become terrified at the sight of the squid and do not move. Divers wearing goggles and gloves for protection against the sharp coral spines descend and bag the lobsters at will.

In eastern Melanesia knowledge of irrigation was highly developed among native peoples. Irrigation terraces similar to those of northern Luzon in the Philippine Islands and water conduits of split bamboo stems, together with other features of extensive irrigation projects, were in use in New Caledonia when the Marist missionaries first arrived in the 1840's.

New Caledonia differs from the rest of Melanesia in that its climate is more semitropical than tropical. Furthermore, it is larger than the Pacific islands with which Americans have been familiar in the past. The climate from May to December is cool and generally dry—somewhat like Florida in winter.

The eastern or windward side of the island has more rain than its western slope. Here thrive great tree ferns which reach the height of forest trees in the United States. Two-thirds of New Caledonia's surface consists of crystalline-serpentine rock containing extensive mineral deposits. The scanty soil in this mineralized portion of New Caledonia produces only a scrub forest, but the valleys are fertile, and in them the natives cultivate food plants. Introduced plants such as the guava, acacia, lantana, aloes, and wild lemons grow here without cultivation, and overrun abandoned or uncultivated farm land.

The great central mountain range in New Caledonia bears the French name *Chaîne Centrale*. *Niaouli* scrub land characterizes much of the mountainous approaches to the central range. The *niaouli* tree is a type of stunted eucalyptus; from it the French produced a *niaouli* oil which is similar to oil of eucalyptus. The slim and tapering New Caledonian pine is called *pin colonnaire* by the colonial French and has long been used locally in landscaping. Much of the land formerly cultivated through-

out the interior of the colony is going to waste and reverting to extensive growths of *niaouli* and lantana scrub.

New Caledonia has come to be known as a cattle country. During World War I New Caledonia packing houses, which are entirely modern, supplied much of the meat furnished the Australian expeditionary forces. Paspalum grass covers much of the grazing land. A peculiar method of herding wild cattle which overrun the island is noted in the semiannual roundup, the *travail au calicot*. A fence of white cotton cloth is erected in the form of a V half a mile in length. The wild cattle are driven by cowboys into the open end of the V, into which tame cattle had previously been herded. Here they are kept several days without water or food. The wild cattle are afraid of the white cotton barrier and remain with the tame cattle until they are docile enough to be driven with them to the pastures in the fertile valleys.

Not only may imported plants become a pest, but also animal importations. It is said that the wife of one of the early governors of New Caledonia brought to the island a pair of Indonesian deer from Sumatra and that from that comparatively recent beginning have developed the numerous herds of wild deer. An average of 150,000 deer skins are exported annually. Deer hunting is a popular sport throughout the island.

PATTERNS OF CULTURE

Physical types and language.—The Melanesians proper inhabit the islands of Fiji, New Caledonia, New Hebrides, Banks, Santa Cruz, Solomon, New Britain, New Ireland, Admiralty, those off the southeast coast of New Guinea, and part of the north and southeast coast itself. In Fiji, and to a lesser extent in New Caledonia and the Loyalty Islands, they are mixed with Polynesians; in New Britain, New Ireland, the Admiralty group, and New Guinea, with Papuans.

The line of demarcation between Malaysian or Indonesian peoples and Melanesians is drawn between Sumba and the island of Timor in the East Indies, across Flores, and between Celebes and the Moluccas. In Timor, the Negroid and the Malaysian types meet. The Melanesians on that island are represented by both broad-headed and long-headed physical types.

The Arafuras are a mixed group found in Misool and on the island of Ceram, one of the more important of the Moluccas. They are very small, delicately molded as to physique, and less stocky than the Papuans of New Guinea. They resemble the Melanesian rather than the Papuan and have broader noses and coarser features than those of a pure Malay.

A large element of Papuan origin is found in the population of Melanesia. The Melanesian population is, therefore, not homogeneous but exhibits considerable variation. The heads are usually long, but here and there are found round-headed groups. Average stature is short as compared with that of the American (average measurements for males are cited under the various island group headings). The forehead is commonly rounded, with brow ridges not usually prominent. The nose is generally broad and smaller than in the Papuan; it is sometimes straight. The hair is of the frizzly type and sometimes curly or wavy. The skin is sometimes very dark, shading to the color of saddle brown.

R. H. Codrington of the Melanesian Mission was one of the first linguists to point out identities in Polynesian, Melanesian, and Indonesian languages, a linguistic discovery later confirmed and expanded by other students. Australian and Papuan languages, which vary too widely in structure and vocabulary for group classification within the orbit of Oceanic stock languages, are thereby excluded. The linguistic relationship existing within Oceania may have great historical and cultural significance, since Papua and Australia are so closely allied geographically to Melanesia.

Pidgin English, the lingua franca used in interdistrict, interisland, and commercial contacts throughout Melanesia is essentially a collection of nouns, adjectives, and other words forming an English vocabulary arranged to a certain extent according to Melanesian grammatical construction. Melanesian dialects distinguish, for example, between dual and plural, and also between inclusive and exclusive dual. Pidgin English is generally spoken throughout the whole of Melanesia, just as in another great area of the West Pacific, the Dutch East Indies, the Malay dialect has come to be the universally accepted medium of commercial and social intercourse. Pidgin English is characterized by the use of words used in common English speech but spelled as an illiterate individual of any country would tend to enunciate and unite its various sounds. Phrases that illustrate this principle are:

bello, assembling of laborers at sunrise
olotime, all the time
olosame, all the same
house-cook, cookhouse
house-washwash, washhouse

The Melanesian proudly asserts that "Talk belong me, he straight; all other kind talk, he cranky."

The following lines in pidgin English are from a songbook published by a Roman Catholic mission in New Guinea and would be immediately understood throughout the controlled area of Melanesia:

Ples bilong mi i namberwan,
 (Place belong me he number one,)
 Mi laikim im tasol.
 (Me like him that's all.)
 Mi tink long papa, mama tu,
 (Me think along father, mother too,)
 Mi krai long haus blong ol.
 (Me cry along house belong all.)
 Mi wok long ples i longwe tru,
 (Me work along place he long way true,)
 Mi stap no gud tasol.
 (Me stop no good that's all.)
 Ples bilong mi i namberwan,
 (Place belong me he number one,)
 Me laikim im tasol.
 (Me like him that's all.)
 Ol wantok, brader, susa tu,
 (All one talk (i.e. my fellow tribesmen), brothers, sisters too,)
 Long taim i wetim mi.
 (Long time they wait for me.)
 Ol salim planti tok i kam,
 (All send plenty talk he come,)
 Ol tink mi lus long si.
 (All think me lost along sea.)
 Nau mi kirap, mi go long ples,
 (Now me get up, me go along place,)
 Mi no ken lusim mor.
 (Me no can lose him more.)
 Ples bilong me i namberwan.
 (Place belong me he number one,)
 Mi laikim im tasol.
 (Me like him that's all.)

Calendar.—Events in the Melanesian calendar are noted as taking place with relation to the beginning or the end of the trade-wind season. If the monsoon season is particularly rainy, as in the Trobriand Islands, east of New Guinea, festivals, voyages, and important undertakings are arranged on a monsoon seasonal basis. The state of the staple crop is, generally speaking, the basis of calendar calculations. Weeding, planting, harvesting periods are references for calendar intervals.

The lunar calendar, except in calculating the time of the probable appearance of the palolo worm, has little significance except to garden magicians. The elders of the village who plan feasts, mortuary ceremonies, and the numerous events of clan life do calculate by a lunar system and have names for the 13 lunar months of the solar year. To the average native, ripening of the tubers or of the nuts, and the changing of the wind direction heralding the major trade-wind or monsoon seasons

are more important. A peculiar dating of months by the position of the constellation Pleiades in relation to the directional location of certain neighboring villages at sunset is known to some of the islanders.

Throughout equatorial Melanesia the year is divided seasonally into the monsoon season, which lasts from November to April or May, and the season of the southeast trade winds. Large land masses are affected climatically by these changes, but the smaller islands show less appreciable differences.

Subsistence.—Taro and bananas, two staple foods, are represented by many distinct species. Taro tubers require about 5 months to reach maturity. Banana suckers are planted with taro shoots but require a year to produce a bunch ripe enough for plucking. Cut-up taro and unripe bananas are cooked together as a vegetable stew. Tobacco, yams, sugarcane, and herbs are also sporadically cultivated in native gardens.

Forest products, sometimes cultivated, are utilized as foods. The canarium almonds are eaten in otherwise tasteless puddings and are exported to the New Guinea inland tribes. In season, breadfruit where it can be grown replaces taro as the staple for most meals. Coconuts not only supply drink but at times also the midday meal. Starch of the sago palm is utilized on the occasion of feasting. The pawpaw, or Malay apple, and other fruits and berries are collected and consumed as food. Nuts including the Tahitian chestnut and the areca palm nut for the betel mixture are collected.

The storehouse, which is characteristic of the New Guinea village where yams are cultivated, is absent in Melanesia. Taro and bananas spoil very quickly, although taro roots will keep if left in the ground for a few months after ripening.

The marine annelid, the palolo worm, which rises to the surface of the sea on the seventh to ninth day after the full moon in November for spawning, is considered a great delicacy. Melanesians are primarily gardeners but, in a nearly equal degree, fishermen. In the larger islands there is usually a sharp distinction between the coast people, who are mostly fishermen, and the inlanders, who cultivate garden crops; the latter are always by far the more primitive. The gardens, in which both sexes work, are very well tended; on some of the islands irrigation is practiced, and on New Caledonia irrigation canals are constructed. Fish are almost everywhere captured by hooks, spears, and traps. In Santa Cruz, the Solomon and Admiralty Islands, and New Guinea the bait is sometimes suspended from a kite, so that it trips along the surface of the water. Except in New Caledonia, there is not much game, and hunting is therefore not an important pursuit.

Cooking is performed by means of heated stones, or locally in pots or shells, fire being produced by friction, usually by rubbing a stick along a groove in another or hearth stick. A mild intoxicant, *kava*, is prepared from *Piper methysticum* in Fiji, New Hebrides, and the Banks Islands, where the practice has been introduced from Polynesian sources. Betel chewing, introduced from Indonesia, is found as far east as Santa Cruz and Ticopia.

Shelter.—Habitations vary greatly in pattern and in size from the rude huts of the inland Admiralty Islanders to the large communal dwellings of New Britain. A circular ground plan is found in New Caledonia and locally in the Admiralties, Santa Cruz, and New Ireland, and was the usual pattern originally in the Banks Islands. Elsewhere buildings are rectangular. Pile houses are common on the coast of the Admiralties (Manus), in the Solomons (Florida Island), New Britain and New Ireland, and Melanesian New Guinea, where villages extend some distance out into the sea.

Clothing and bodily adornment.—Clothing is very scanty. Materials for costume and decorative apparel are taken from the vegetable kingdom, bark-cloth girdles and trade-cloth loin covering for the men and fringed skirts for the women being the most common patterns. Head deformation is still occasionally practiced, notably in New Britain, but vestigially throughout Melanesia. The piercing and distention of the ear lobes is common. Tattooing is found practically everywhere in eastern Melanesia; cicatrization, frequently by burning, is among the forms of bodily decoration rapidly disappearing in Fiji, New Caledonia, the Solomons, New Ireland, and New Britain. Throughout the area from New Guinea to the Solomons, the septum of the nose is pierced, and a pin worn in the hole; in some cases the wall of the nostril is pierced (Ontong Java), or a small hole made in the tip of the nose to receive the point of an ornamental pin (Solomon Islands). The hair is frizzed out in a mop in Fiji, New Caledonia, New Britain, and in Melanesian New Guinea; elsewhere it is generally kept short; in some islands it is bleached with lime; combs are inserted as ornaments, those of the Solomons and the Admiralty Islands being the most decorative. Necklaces of string and shell, shell beads, teeth, and seeds; armlets of shell or trade beads; pendants of shell, turtle shell, and boar's tusks are worn in great variety. Especially characteristic are the cachalot ivory pendants and shell and ivory breast-plates of the Fijians, the serpentine beads of New Caledonia, the large discoidal shell ornaments of the Solomon Islanders, the turtle-shell fret-work of the Solomons, New Ireland, Admiralty, and New Guinea, and the boar's tusks of New Britain and the Admiralty Islands.

Arts and crafts.—Canoes are found everywhere except in the Torres (Banks) Islands, the commonest craft being the dugout with single outrigger. In part of the Solomon Islands a well-made built-up plank canoe without an outrigger but with high prow and sternposts, often ornamented with shell inlay, is characteristic. Large double canoes are built in Fiji, New Caledonia, and Melanesian New Guinea; these are furnished with sails and are capable of performing considerable voyages during which pottery is traded along the coast of New Guinea for sago. Canoes, drums, arrows, and clubs are also bartered.

Various forms of "currency" are in use in different islands, but strings of small shell disks are most characteristic; other forms are whale's teeth (Fiji), and "flying fox" teeth (Solomon Islands). A peculiar system of ceremonial exchange of shell ornaments, known as the *kula*, occurs in a certain group of islands in the archipelago off the eastern end of New Guinea. Two distinct types of ornament are passed around the group from island to island in opposite directions, and are the subject of elaborately organized maritime expeditions (*lakatoi*).

Quite aside from traders' goods, the chief tool is the adz or ax, with polished blade of stone or even of shell, as in the New Hebrides, Banks Islands, Santa Cruz, Admiralty Islands, and in Melanesian New Guinea. Of the stone blades, the best are the serpentine ceremonial axes of New Caledonia.

The best pottery was formerly made in Fiji; native Fijian pots exhibit great variety of shape and are covered with vegetable varnish; in New Guinea the Motu, a Melanesian tribe living near Port Moresby, are the best potters. Pottery is also made in New Caledonia, one of the New Hebrides (Espiritu Santo), the Solomons (Bougainville, Treasury), and the Admiralty Islands. Bark cloth was formerly manufactured in most islands, but nowhere attained the excellence of Polynesian tapa. Looms are found in Santa Cruz, and were formerly used by the Banks Islanders, but are now obsolete in the latter group. Food vessels are largely carved from wood, the best known being the large *kava* bowls of Fiji, the inlaid food bowls of the Solomons, often in bird forms, and the elaborately carved bowls of the Admiralty Islands. Containers and utensils are also constructed from gourds, bamboo joints, and coconuts.

The decorative art of the Melanesians is of a fairly high order, especially in the Solomon Islands, Bismarck Archipelago, and New Guinea. Human, bird, and fish forms appear more or less conventionalized in al-

PLATE 14

Village scene in Guadalcanal, British Solomon Islands. Photograph by Merl La Voy.

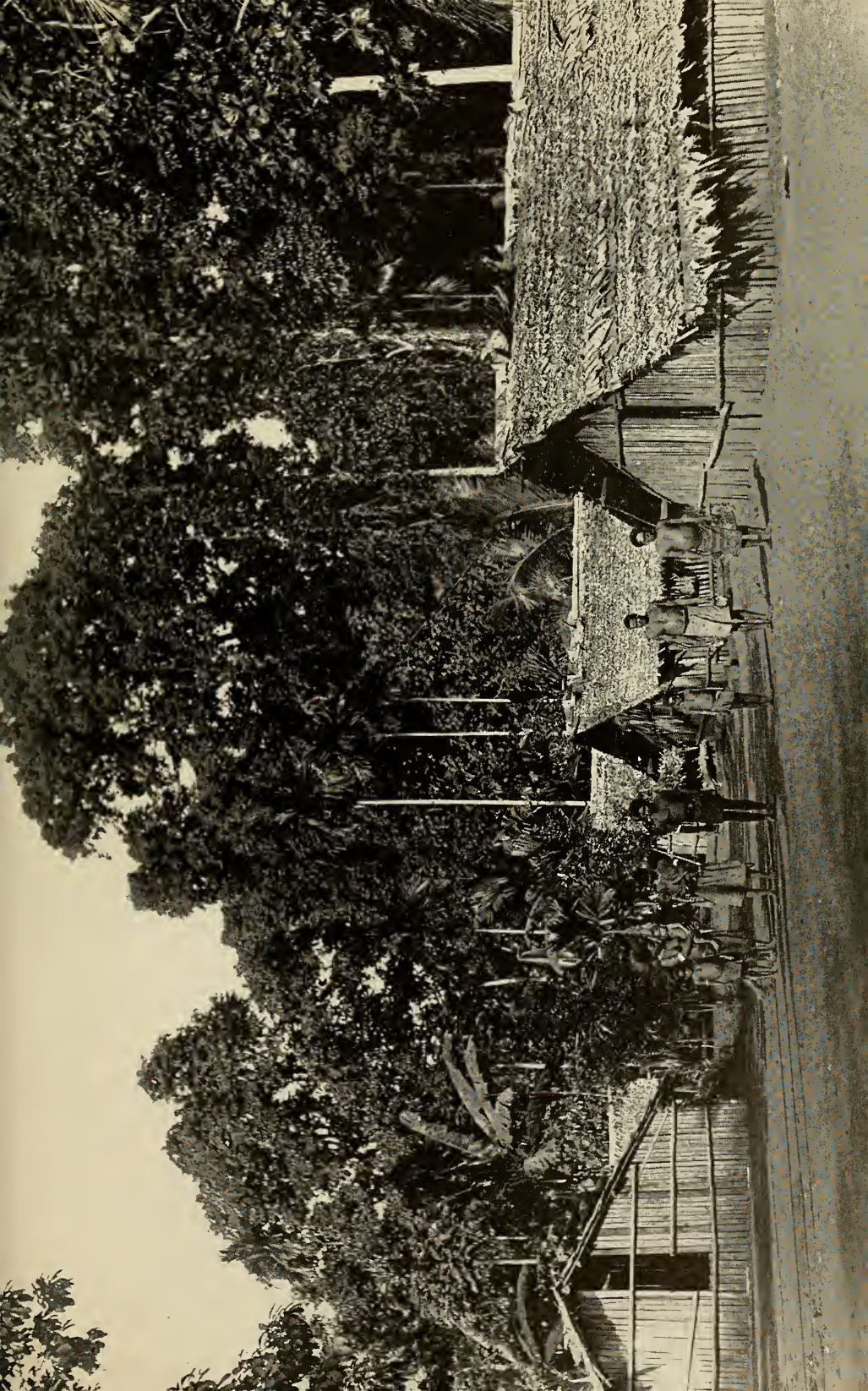




PLATE 15

Left: A girl about 15 years old, Malaita Island, British Solomon Islands. Note the elaborate appendages in ears, nose, and about the neck, also the raised scar tissue decoratively applied on upper torso.

Right: Youth of Malaita, British Solomon Islands, playing the Panpipes. Ability to perform on this primitive musical instrument is a traditional prerequisite for boys entering manhood.

Photographs by
Merl La Voy.



PLATE 16

Left: A young man of Florida, British Solomon Islands. His lime-bleached hair is no less arresting than his English clay pipe.

Right: A man of Malaita, British Solomon Islands. The decorative headband and nose-pin of shell, formerly characteristic, will probably soon be discarded.

Photographs by
Merl La Voy.

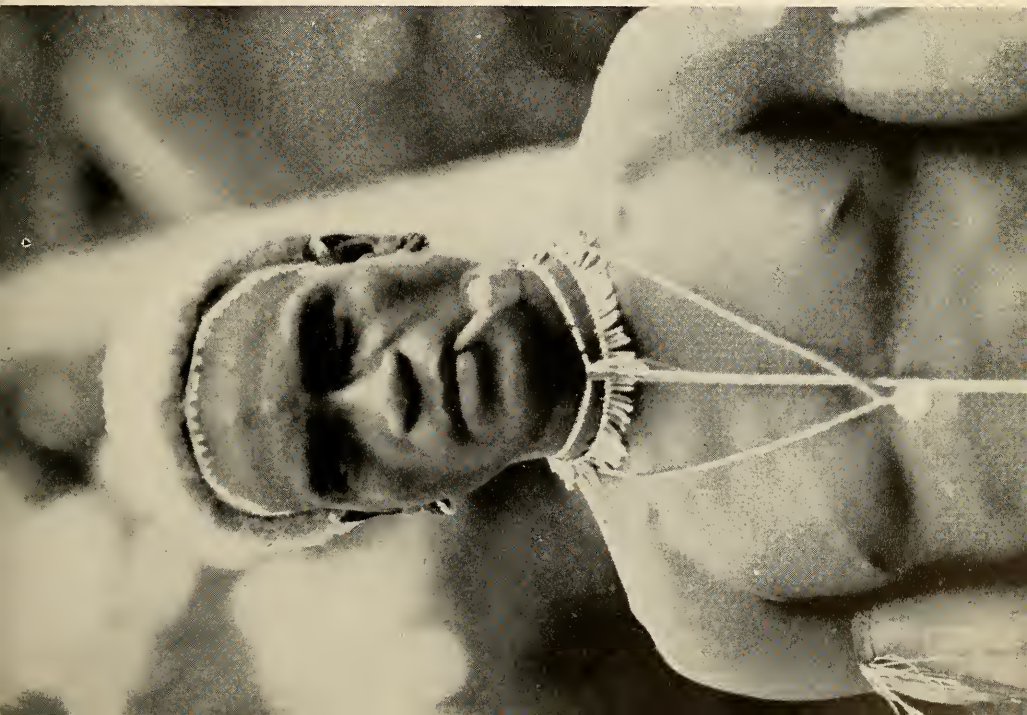




PLATE 17

Upper: Fighting men of Graciosa Bay area, Santa Cruz Islands. This group probably represents the extreme form of decorative dress in Melanesia.

Lower: Dancing group, island of Ugi, British Solomons.

Photographs by Merl La Voy.



most every pattern. In the eastern Solomons bird and fish patterns predominate, but in the western Solomons the art resembles rather that of the New Britain Archipelago. The art of the New Hebrides, Banks Islands, and Santa Cruz is mainly geometric.

Prevalent geometrical designs are almost always traceable to some anthropomorphic, zoomorphic, or phyllomorphic motive more or less conventionalized. Thus in the bark belts, the human face is applied as a decorative pattern. Eye forms are occasionally plainly recognizable. On combs and wooden clubs are etched a curved beak and eye of the frigate bird. This design is conventionally modified into meandering, interlocking spirals with the eye placed at each point of intersection. The beak alone is represented occasionally in Melanesian art as scrolled arabesques.

Wood carving is usually characteristic of peoples of the Stone Age, and this is notably true of the Melanesian islanders. Their carvings of representations of the alligator and the frigate bird are superb. The Polynesian art complex employs similar designs but uses the medium of bark cloth instead of wood. Tattooing is characteristic of both Melanesian and Polynesian areas.

Social customs, games, and music.—Advancement in social status in Melanesia involves only the adult male and consists chiefly in receiving the admiration and respect of the society in which he lives. The attitudes, demeanor, and behavior of the advancing aspirant to social prestige simulates what is considered by the group as the ideal pattern of manhood. Criteria by which he is judged are numerous. In unacculturated groups, the badge of homicide is foremost. The capture of trophy heads and skill in fighting come next. Also of great importance are accomplishments in the hunt and in the arts such as carving of the sacred wooden images (*malagan*), as well as ability in playing on flutes and gongs and in dancing and singing. Possessing more than one wife is obligatory to the social climber. He must, furthermore, stand up for his rights whenever threatened—he must give the impression of great strength.

The status of the headman is conditioned by the reputation of the individual or by his rank in the men's clubhouse. Hereditary patrilineal chiefship also occurs in New Caledonia and in Fiji. The laws relating to property, especially land, are complicated. In New Caledonia a dying man will frequently distribute his property, while in the Admiralty Islands the property of a deceased headman is distributed by his son amongst the whole tribe. The only islands where chiefs of any power are found are Fiji and New Caledonia. The high position of the Fiji chief is due to the religious sanctity which surrounds him as the direct descendant

of the tribal ancestor. The conquest of the greater part of Fiji by the Mbau raised its leader to a position occupied by no chief elsewhere in Melanesia. In the New Hebrides, Banks Islands, Santa Cruz, and Solomon Islands, a chief usually owes his position to social climbing, or to the fact that he has inherited the cult of some powerful spirit. In New Britain, the duties of village headmen lie mainly in the administration of the village funds. Village headmen also appear in the Admiralties, in New Guinea, and in the Trobriand Islands.

Secret societies with graded membership as in Masonry are found in the Torres and Banks Islands, in the northern New Hebrides. Indications of the former existence of such societies are found in New Caledonia, in the interior of Fiji, and again in the Bismarck Archipelago. With the exception of Fiji, the societies are associated with matrilineal descent and are most developed where dual organization is found. The institution known as the men's house is a prominent feature of secret societies. The use of masks is also important. On the one island of Mota there are 77 societies with various subdivisions. Each society is the owner of marks which are used to protect property.

The Qat of the New Hebrides, the Tamate of the Banks Islands, the Matamgala of Florida, the Dukduk of New Britain, the Nanga of Fiji are examples of the secret societies which are characteristic features of Melanesia and are accessible to men only. The candidates during initiation have to submit to rough treatment. The members of the societies are believed to be in close association with ghosts and spirits of the dead. They exhibit themselves in masks and elaborate dresses, in which disguise they are believed by the uninitiated to be supernatural beings. Mysterious noises which herald their approach are produced by the bull-roarer and other appliances. Such organizations are powerful agents for the maintenance of social order, and they inflict punishment for breaches of customary law. Women are rigorously excluded, except in the case of the Nanga of Fiji, which is said to have been introduced from Tonga. The clubs are a means of attaining social rank. They are divided into different grades, the members of which eat together at their particular fireplace in the clubhouse. Promotion from one grade to another is chiefly a matter of payment, and few reach the highest. Those who do so become personages of very great influence, since no candidate can obtain promotion without their permission.

The social system is complicated. Male descent is characteristic in Fiji (where traces of female descent also exist among the hill tribes) and portions of the Solomon Islands. Elsewhere in Melanesia, descent is

traced through the mother, particularly in the New Hebrides, Banks Islands, locally in the Solomon Islands, New Britain, Admiralty Islands, and the southeast end of New Guinea and its island satellites. In Fiji the natural wife for a man is his mother's brother's daughter; in New Caledonia the cousins on the mother's side are regarded as fitting consorts, but not those on the father's. In both these islands, and part of the New Hebrides and Solomon Islands, brothers and sisters after puberty must avoid one another.

There are many forms of children's games. Athletic amusements include running and wrestling (Fiji), football (New Hebrides), surf-riding with a board, hide-and-seek (Banks Islands), throwing and dodging spears (Solomon Islands). Toys such as tops (Solomons, New Guinea) and kites (New Hebrides, Banks Islands, and New Guinea) are also enjoyed. A game called *lavo*, with disks and a board, is played in Fiji. In the Banks Islands of the New Hebrides group, as in some of the western islands of Polynesia, a reed dart with a pointed head of heavy wood, the *tiga*, is thrown by hand, the object being to attain the greatest distance. The game of cat's-cradle or the making of figures with a string and the fingers of the hands is thoroughly enjoyed by Melanesian children and adults. Mimetic dancing is performed on ceremonial occasions often with the wearing of masks.

Musical instruments do not exhibit much variety. Wooden drums are used on all the Melanesian islands except Santa Cruz. Those of the New Hebrides are especially remarkable, both in size and from the fact that they are ornamented with a grotesque head carved at one end. The drums of the Admiralty and Solomon Islands, also those of northern New Guinea and New Britain, used for transmitting signals are very large. Flutes played either with mouth or nose are made in Fiji, New Caledonia, New Britain, New Ireland, and New Guinea. The conch-shell trumpet, generally with lateral orifice, is known in all the islands except New Caledonia, being used ceremonially and for sending signals. The bamboo jew's-harp is fashioned and played in the Solomon Islands, New Britain, Admiralty Islands and New Guinea. Crude stringed instruments and a form of musical bow have been reported from the same areas.

Warfare.—Native causes of conflicts within the Melanesian area between groups normally friendly usually involve one or more individuals of one village or clan with an individual of another village or clan. Another more serious cause of conflict and warfare in Melanesian society is traditional enmity between clans or districts not normally friendly. In the smallest island a constant state of suspended warfare may exist, the

two opposing districts being separated by a sort of "no man's land" which in days gone by was the traditional battleground. Causes of conflicts of the first type for which individuals are primarily responsible are seemingly for the most part trivial, such as might in civilized society be removed with the payment of a light fine or brief imprisonment. Also included in this group are conflicts arising out of violation of native practices and taboos, as for example elopement with a girl without the prior payment to relatives by the bridegroom of the proper bride price. Also included are thefts from another's garden or insults publicly expressed on the occasion of ceremonial gatherings. The relatives and clansmen, however, consider the affront as offered not to the individual but to the group. The injured man feels that the injury was directed against all clan members. The clansmen of the offender are bound by ties of kinship to protect him from retribution. The honor of the two parties must be vindicated in a general melee. Quarreling of this character may result from a man's receiving an inadequate food portion at an important feast, leading him to denounce the giver of the feast in a loud and querulous voice.

Conflicts of the second type, usually much more serious and prolonged, are due to no individual action at all but to natural causes which in civilized nations might be termed "an act of God." A prolonged drought is attributed to sorcery emanating from a neighboring village or clan. This leads to reprisals by countermagic or by a hostile act. Greed for neighboring lands and the grasping of territory in the possession of others, a common cause of civilized warfare, plays an extremely minor role in Melanesia. The Old Testament injunction, "an eye for an eye, a tooth for a tooth," characterizes war aims in Melanesian society, the community effort being directed not toward obtaining compensation, but toward exacting reprisals.

In Melanesia the completion of any important work demanded a human sacrifice whose head was ceremonially treated and disposed of usually in some public place to appease the spirits who might otherwise cause the undertaking to miscarry. The launching of a war canoe, the building of a canoe house, the acquiring of skulls for special ritual purposes, the erection of a new chief's hall, the death of an important headman, and other similar reasons were given, and in certain areas continue to be given, for the taking of a human head. The germs of warfare are obvious in such practices.

Certain rules of warfare were recognized by both parties to the resulting conflict. The place where the conflict was to take place was a "no man's

land" reserved for that particular purpose. The day and place of conflict were settled beforehand by both sides. The battle could be halted by common consent or continued if convenient to both parties. Hostilities took on an elaborate ceremonial nature and the observance of the etiquette of war was a religious obligation. The rules for peacemaking were as ceremonial and elaborate as those controlling hostilities. Ceremonies and semisacred rules regarding the etiquette of war and peace varied throughout the great expanse of the Melanesian island world. Before the Japanese invasion the controlled area was rapidly being extended and native warfare suppressed.

A peculiarity of Melanesian warfare is that in both types of conflict—that of the individual supported by his kinsmen, or that of the entire group—causes of ill will had to be removed with the cessation of hostilities. This was achieved by each party's compensating the other for injuries received in the fighting, the party suffering most receiving the greater compensation. Payments were made in compensation for men killed in fighting and for the wounded, also for pigs that had been killed and for insults openly expressed regarding particular individuals. Traditional peacemaking procedures varied from island to island, almost from district to district. The typical weapons of Melanesia are the club and spear, and each island possesses its own distinctive patterns. Clubs are massive, though a smaller knobbed type is used as a missile. The wooden clubs of the Solomons are often partly overlaid with plaited basketry work, while short maces with heads of pyrites were seen there by Mendaña. Those of New Britain have stone heads. The ceremonial mace-club of the New Caledonian clan chief is of disk-shaped polished serpentine. It was socketed into live wood which lent additional strength to the haft.

Of the spears, those of the Solomon Islands and New Hebrides, which are often furnished with bone barbs, are the most elaborate. Those of New Caledonia are usually pointed with a sting-ray spine, while those of the Admiralties commonly have an obsidian head. In New Caledonia spears were hurled by means of short cords; in northern New Guinea bamboo spear throwers are employed. Slings are used in most of the islands.

The Melanesian bow is plain, although the arrows vary greatly in pattern and in the number and material of points and barbs. Arrows are unfeathered except in the New Hebrides and Aru Islands. In the New Hebrides, Solomon Islands, and New Guinea, guards are worn to protect the left arm against the bow string. The bow is also used as a hunting

or fishing weapon. Many excellent hardwood bows were collected in 1840 by the United States Exploring Expedition in Fiji, the New Hebrides and Banks Islands, Santa Cruz, and the Solomons.

Daggers are fashioned of obsidian in the Admiralty Islands, but of cassowary bone in New Guinea. As parrying weapons clubs are used in the New Hebrides, and shields sporadically in the Solomon Islands, the Bismarck Archipelago, and New Guinea. Blowguns have been reported from the South Cape in New Britain.

Head hunting was carried on by raiding parties against a distant and preferably an unprotected village. Dangers of retaliation were decreased if the attacked group was unacquainted with the attackers. The familiar pattern of head hunters the primitive world over is seen in the surrounding of a dwelling, each hunter crouching with spear poised, and in the staging of the attack just at dawn. As the occupants rushed out they were speared. All were killed, if possible. No one was spared because of age or sex. Only the heads of male victims were carried back with the raiding party. Each head was carried by the ear. The community welcomed the returning warriors with a celebration of victory. Treatment of heads varied. After the flesh disintegrated, the head was sun-dried and painted. Head hunting was most developed in the western Solomon Islands, the New Hebrides, and New Britain and New Ireland, but was completely absent from southern Melanesia. In the Solomons, natives of the islands southeast of Ysabel did not practice head hunting.

It was customary among the Tanga of New Britain to collect the bodies of the slain enemy and carry them to the chief settlement of the victorious clan. Corpses were carried with the face of the dead man toward the ground, while his arms and legs were secured behind his back at the wrists and ankles. A pole was then pushed through the tethered arms and legs and the body was thus carried, belly down, to the feasting ground. Each man had a right to the body of the warrior whom he had slain. As the body was being carved up preparatory to being placed in the oven a special signal was made on the large wooden drum. This announced to the enemy that a cannibal feast was being made of their dead.

Although there is much to suggest that cannibalism was at one time very common in Melanesia, there is however only one report from the New Hebrides to support the theory that human flesh was regarded as a special delicacy. The body of an enemy was eaten because that was the most insulting way of treating an enemy.

Cannibalism was attended by ritual from the time the body was prepared for transport to the moment when it was actually consumed. The

formality of the proceedings marks them immediately as social actions with definite social functions. Cannibalistic feasts were merely retaliatory actions designed to assuage outraged group feelings.

Burial customs.—The disposal of the dead varies greatly. Sometimes the body is subsequently disinterred, the skull preserved, and the bones reburied. In the New Hebrides (Malekula), Solomon Islands (Rubiana), New Ireland, and New Guinea (Sepik River) the features of the deceased are more or less realistically modeled over the skull in fiber, clay, or other plastic material. In places the body or bones are buried on a coral reef or sunk in the sea (New Hebrides, Solomon Islands, New Britain, and Admiralty Islands). Sometimes the body is exposed in a tree (New Caledonia, Solomon Islands) or on a staging, and the bones later placed in a crevice in the rocks. Burial in a canoe occurs in the Loyalty (Maré) and Solomon Islands. In the latter islands attempts to preserve the body in certain cases were made by painting with turmeric or removing the viscera and inserting wood shavings. In some cases the body is simply left to decay, while the dried skin and bones are kept in the dwelling or deposited elsewhere. In the Admiralty Islands certain relatives receive bones as mementos. In New Ireland the corpse is placed on a stage and a fire lighted beneath; when the stage collapses, the liver is removed from the body and distributed and the rest of the body burned.

Commemorative feasts in the case of important men are celebrated in New Caledonia, New Hebrides, and Banks Islands. The strangling of the widow or widows was a frequent feature of a Melanesian funeral in early days.

Magic and religion.—Magic is used to further private ends or for economic purposes, as in garden culture and hunting. Knowledge of the right magical formulae is as essential to the canoe builder as knowledge of the correct engineering formulae is to the naval architect. There are many gods and nature spirits but the most prominent religious concept is undoubtedly that of *mana*. *Mana* is a force altogether distinct from the forces of nature. This power or force is supernatural and acts in all kinds of ways for good or for evil. To succeed in almost any undertaking, it is necessary for the Melanesian to possess or control some of this force. Although supernatural, *mana* reveals itself as a physical force, or in any achievement or activity of an individual.

Spirits and ghosts are the custodians of this *mana* and can impart it to the living individual; hence the Melanesian's veneration and fear of ghosts and spirits. Melanesian religion consists essentially in getting this *mana* for one's self or, at any rate, for one's benefit. All religious cere-

monial practices from ritual cannibalism to the sacrifice of pigs go toward achieving this individual religious goal.

Much effort is devoted to the propitiation of spirits, which are of two kinds, the ghosts of departed men of influence, and spirits which never have been men. In Fiji a regular hereditary priesthood is found, and the gods are provided with temples. In the New Hebrides, Banks Islands, and Santa Cruz, any man can act as priest who knows the particular ritual suitable to a definite spirit, and the man who is in communication with a powerful spirit rapidly becomes a person of importance. In the Solomon Islands offerings are made at shrines built for relics and images of the departed great. The shades of the dead are the principal objects of reverence also in the Admiralty Islands and New Guinea. Everywhere is the belief that the soul after death must undertake a journey beset with various perils to the abode of departed spirits. As a rule only the souls of brave men, or initiates, or men who have died in battle, win through to the most desirable abode. In the Solomon Islands ghosts are supposed after a certain period to become transformed into ants' nests and to form food for other ghosts. The abode of departed spirits is often represented as lying beneath the earth (New Caledonia, New Hebrides, New Britain), or in some cases as situated on a mountain.

Black magic is sometimes practiced with the aid of a figure, representing the victim, which is mutilated. Sickness is frequently attributed to possession by a spirit or to the action of an enemy who has stolen the invalid's soul or introduced some foreign substance, such as a stone, into his body by magical means. Sickness of this sort is treated by incantations and countercharms, or by the simulated removal of the stone by suction. Bleeding, concoctions of herbs, and massage are the most usual remedies applied for illness of any sort, while trepaning is practiced in New Britain in case of injury to the skull from slingstones. Divination by prophecy, when the individual becomes inspired by some spirit, and by dreams is practiced.

The first Christian mission work in Oceania was conducted by the Roman Catholics in the sixteenth century. The Wesleyan movement in England was the first to further the Protestant mission within Melanesia. Later came Episcopal, Methodist, and Presbyterian missions which operated from England and later from New Zealand and Australia. Still later came Lutherans, particularly in the German colonies of the Bismarck Archipelago and New Guinea. Last to arrive were the Mormons, Pentecostals, and Seventh Day Adventists. Jehovah's Witnesses have recently made their appearance in Fiji.

The sect first to arrive obtained the most converts. Thus most Fijians are Methodists. The Tannese of New Hebrides are Presbyterians. At first the several denominations agreed to operate in distinct areas. Later, both Protestants and Catholics desired to work in each other's territory. Many communities now have two or more churches and a following.

NEW GUINEA AND ITS ISLAND SATELLITES

New Guinea's total area of 360,000 square miles of tropical forest, swamps, and high, precipitous mountain chains remains as yet incompletely explored, and its resources are almost entirely undeveloped. Successive claims to the entire island were advanced by Spain and Great Britain, but the claims of the Netherlands to the western half of the island were recognized by Britain in 1824, although the Dutch made no permanent settlement until 1898. In the 70's traders and missionaries began to arrive in the eastern portions of the island, and in the 80's Australia began to worry about the imperialist activities of Germany under Bismarck. Even today Australian claims for control of the islands north of their continent are based on defense measures. In 1884 Germany took possession of the northeastern coast of the island, and Britain immediately declared a protectorate over the remaining eastern portion of the island and the eastern outlying islands. In 1888 this territory was declared a Crown colony and in 1906 was transferred to the 5-year-old Commonwealth of Australia. In 1914 Australia took possession of the German-occupied northeast portion of the island, as well as of the Bismarck Archipelago (New Britain, New Ireland, New Hanover, and the Admiralty Islands), and in 1920 the League of Nations gave to Australia a class "C" mandate for this territory which it has administered since May 9, 1921. The southeastern portion of the island, which Australia had received from Britain in 1906, continued to be administered separately as the Territory of Papua. The practice initiated by the Germans of extending the name New Guinea to include the islands of New Britain, New Ireland, and others of the Bismarck Archipelago was continued by the Australians.

The extremely mountainous interior of New Guinea has prevented the building of roads to the interior. There was before the beginning of World War II no land road from Port Moresby, the capital of the Territory of Papua on the south coast, to Lae at the base of the Huon Peninsula on the north coast, the capital of the Mandated Territory after the removal there of the seat of government from Rabaul, New Britain, in 1941. Transportation has been entirely by boat along the coast. What has hindered commercial exploitation has, however, fostered native popu-

lation growth. The terrain is too difficult even for the successful conduct of petty native warfare by the numerous Papuan and Melanesian tribes. This may be one of the reasons for the relatively large native population of the secluded interior valleys.

The western, or Dutch portion, of New Guinea, is exploited in a small way for copra and for gum dammar, which is used as a base for varnish. Prospecting for oil and gold was interrupted by the war. Experimental growing of rubber and coffee has been initiated. In Papua, the south-eastern portion of the island, considerable acreage has been improved in coconut and rubber plantations. Papua also exports *bêche-de-mer* (trepang), pearls, and trochus shells.

The Mandated Territory, that is, the northeast portion of the island, has a white population of about 4,500. The area under commercial cultivation comprises 260,000 acres, about half of which is devoted to the growing of coconuts mainly on New Ireland and New Britain. Shells, trepang, tortoise shell, rubber, coffee, cocoa, and peanuts are exported. Prospecting for oil was active before the outbreak of the war, but it is gold that has made the Territory prosperous. An Australian prospector, Shark-eye Park, was the first to obtain paying amounts of gold from alluvial panning in the 1920's in the Morobe district. Another Australian developed dredging operations in the same field, and in connection with these operations inaugurated the Guinea Airways, a freight-carrying line from the ports of Salamaua and Lae on Huon Gulf. The goldfield of Wau is but 33 miles by air from Lae, and although no land road has been built, about \$10,000,000 worth of gold is taken from the Wau fields each year. Labor demands for the goldfield are great, and recruiting of native laborers has brought about instability of native life. The death rate among the laborers is high, although the climate is comparatively healthy—the field lying at an elevation of 3,000 feet.

An important phase of administration, aside from the collection of a 10-shilling head tax throughout the controlled area, is the supervision and control of native workers on plantations, in the mines, and in other European enterprises. There is no forced labor as such. Recruiters for the mines and plantations go into the hinterland back of the coastal ports and villages, sometimes relying on trickery involving such devices as ventriloquism, rubber snakes, and missionary garb to obtain recruits to "make paper." Since they must be signed on in the presence of the district officer, the spell must last at least long enough to bring the following of recruits to the town where that official is at the moment. Former blackbirders, unscrupulous traders, and beachcombers have for the

most part gone with the extension of the Mandated Territory Government control areas to much of the hinterland.

The administration of New Guinea is complicated by the great diversity in local languages and in the social organization, religious beliefs, and magic fears, as well as the various means of gaining a livelihood practiced by widely separated peoples throughout the area. The attempt of the administration to enlarge the controlled area is based primarily on the desire to eliminate widespread practices prevalent in the uncontrolled area involving head hunting, cannibalism, sacrificing of widows, immolation, infanticide, and many forms of local warfare. In the uncontrolled areas throughout the interior, villages are perched in the most inaccessible places or at strategic points either to prevent attack or for defense. High palisade stockades guarded by skillfully hidden pits studded with spears are placed along the approaches. All coastal areas are now considered safe for Europeans, but many parts of the interior in the uncontrolled area are not. The fact that visiting white men or an expedition carry much impedimenta in the form of supplies and weapons of various sorts arouses the covetousness of the uncontrolled native. The possession of a steel knife, for example, means much to a Stone Age native, changing his economic status immeasurably.

Quite apart from possible problems concerned with looting, Europeans are cautioned by the district officers to avoid the uncontrolled areas because of the danger of arousing native fears or otherwise upsetting them in an area saturated with fears of sorcery in which all sickness and distress is credited to magic. All strangers are regarded with suspicion and may be attacked if the natives' religious code requires at the time some act of ritual homicide for which the passing stranger might be an appropriate victim.

The language problem is another barrier in the advance of civilization. Even when grammatically related, dialects are so diverse as to be mutually unintelligible a few miles beyond the locality where the language is spoken. The Lutheran missions of the Morobe district have attempted to develop one of the Melanesian types and one of the Papuan types of languages, hoping that by reducing these to writing and through instruction in the schools they might cause them to be adopted throughout the whole district. A similar attempt to single out one of the dialects for recording and literary purposes has been undertaken by the Roman Catholic mission in New Britain and New Ireland, where the language spoken by the natives of the Rabaul district has been selected. Pidgin English has become the common form of speech throughout the Mandated Territory

of New Guinea; without it miners, labor recruiters, planters, and government officials could not transact business with the natives. Pidgin English vocabularies include many words from various New Guinea languages and other languages as well as English.

In the classic work on the Melanesians of New Guinea by C. G. Seligman extensive reference is made to a unique sailing vessel, the *lakatoi*, which is actually a large raft of dugout canoes. By means of the *lakatoi* the natives engage in annual trading voyages in the Gulf of Papua along the southeast coast of New Guinea. This annual voyage is the big event in the social life of the Motu, a Melanesian people who live near Port Moresby in the only dry belt of New Guinea. The Motu women are potters, while the men are sailors, so that when the *lakatoi* embarks on its annual voyage of some 200 miles along the gulf coast, it carries a cargo of cooking pots to be traded for sago. The expedition begins in September, at the close of the season of the southeast trade wind, and returns before April, toward the end of the northwest monsoon season. The organization and actual conduct of the expedition is not only concerned with practical economics, but is hedged about with innumerable magical and ceremonial practices which involve more effort and more avoidance of things tabooed than are required in the actual conduct of the voyage. Formerly such trading expeditions carried an additional cargo of bows and arrows and tobacco which were exchanged for shell ornaments, the ceremonial "currency" so important in discharging the bride price, or payment for wives.

The Melanesian portion of New Guinea is essentially coastal and in the main is limited to the southeastern "tail" of the island "bird" and to its "tail feathers," the small outlying island archipelagoes, namely, the d'Entrecasteaux, the Trobriands, the Louisiades, and other isolated small volcanic islands. Melanesian-speaking people occupy New Guinea's southeastern coast as far west as Cape Possession, while Melanesian settlements have been noted on its northern coast as far west as Geelvink Bay, far within the western or Dutch half of the island. Southeastern New Guinea and its Melanesian island satellites have long been the classic school for the study of primitive social organization.

The Melanesian is slightly taller than the Papuan and reveals in comparison a marked refinement of features. Males of the Melanesian-speaking Arup of the north coast east of Humboldt Bay for whom measurements are available have an average stature of 63 inches. The Melanesian's frizzly hair mop and his narrower and less depressed nasal structure are, in New Guinea, offset by his blacker skin color when

contrasted with the Papuan of lighter skin color who occupies the greater portion of the island and who in the south has undoubtedly come in contact with Australian natives over the islands of the Torres Strait. The Caucasian features which are such a striking characteristic in the bearded Papuan faces with their Semitic or Hebraic cast, accentuated by the figure-6 convex curvature of the nose and the receding hair line, are quite distinct from those of the less hirsute New Guinea Melanesian.

The difficulties in the way of classifying exactly the peoples of New Guinea are illustrated by the number of peoples occupying portions of the Melanesian Bismarck and Solomon Islands who conform to the general Melanesian physical type, but who speak an unrelated Papuan language, while conversely a few Melanesian-speaking peoples of eastern and northern New Guinea are found to conform physically to the Papuan type.

The native peoples of New Guinea are treated at length by M. W. Stirling in Smithsonian War Background Studies Number Nine.

THE BISMARCK ARCHIPELAGO

THE ADMIRALTY ISLANDS

The Admiralties, the most northerly of the Melanesian Islands, lying but 2° south of the Equator, were discovered by Schouten and Lemaire in 1616. The group consists of one large island, Great Admiralty, and many smaller islands including Mok, Buke, Pere, Balowan, Lou, Rambutchon, and others. Great Admiralty Island, 60 miles long from east to west and 15 miles wide, is of volcanic formation, its peaks reaching an elevation of 3,000 feet. Its red volcanic soil and steep slopes are ill adapted to gardening.

The native inland people, although divided into numerous small groups speaking mutually unintelligible dialects, are collectively and disdainfully known to the seafaring people of the islands as Usiai (inland people). They live in small scattered communities but congregate for occasional ceremonies. The light-skinned, timid, scrawny natives of the many smaller islands of the Admiralty group, the Matankor, likewise speak several different dialects and have different customs. A third group of Admiralty Islanders, the Manus, or "salt-water boys," numbering about 2,000 individuals, are darker skinned and much more aggressive. They are also more picturesque and have been singled out for study by American anthropologists. Their villages consist of pile dwellings built out over the water in the wide lagoons along the south coast of the Great Admiralty or are similarly built under the shelter of other precipitous islands. Since

these Manus people do not have gardens, but nevertheless require the products of land and forest that are utilized by the land-dwelling Usiai and Matankor, they resort to fishing and trading. They are adventurous sailors, making extensive interisland voyages in their 40-foot outrigger canoes, and are also skillful fishermen. They trade fish and mollusks to the Usiai for sago, taro, fiber for net and rope making, leaves for bags and mats, betel nuts and gourd lime containers, gum for canoe caulking, and sago leaves for their roof thatch. Turtles are bartered for wood to be used in canoe and house building. There are regular markets for the exchange of products of the sea for products of the land. A conciliating influence on conflicting trade interests may be noted in the interchange of the ingredients of the betel masticatory. The land-dwelling gardeners, the Usiai, grow the betel nut, while the seafaring Manus burn and refine the coral lime with which the betel nut and pepper leaf are chewed.

On Admiralty Island the houses are unpretentious, oval, beehive huts, rather roughly thatched right down to the ground and with only a couple of low openings. Clubhouses are larger and have as doorposts human figures carved in wood and covered with incised patterns, and for interior decoration rows of brightly painted pig and turtle skulls arranged on shelves. Other art expressions include human and animal forms, rendered both naturally and in patterns. They decorate their own bodies with scars, paint, and tattooing.

Their most attractive productions are astonishingly symmetrical wooden food bowls with spiral or fretwork handles; they also fashion wooden bowls in the form of birds, pigs, and crocodiles. On Hermit Island, fretwork or tracery in wood is applied to the decoration of canoe ornaments, spoon handles, lime knives, and other small objects. The Admiralty Islanders perforate the nasal septum and hang a nose pin from a short string of beads looped through the hole. They also slit their ear lobes, which are dragged down into long loops by the weight of suspended ornaments.

In fighting, the natives have specialized in throwing spears with heavy, sharp heads of obsidian or volcanic glass. Blades of the same material are made for use as throwing knives. They also throw smaller reed darts with hardwood points.

Their food is chiefly sago and coconut, supplemented by taro, bread-fruit, bananas, and roast pig.

NEW BRITAIN AND NEW IRELAND

New Britain, the largest island of the Bismarck Archipelago, lies north-east of New Guinea. It is 330 miles long but nowhere more than 50

miles wide. Up to 1928 it had never been crossed by a white man, except at its northern extremity, owing to the fact that a high and very rugged range of mountains extends from one end to the other. The recent travels of three grounded American aviators through its mountainous interior have materially contributed to our geographic knowledge of the island.

Volcanic action is evident throughout the island, especially in the north, where are located the Matupi sulfur springs close to the town of Rabaul. The highest peak on the island, the Father (7,500 feet) on the northwest coast, is an active volcano. Near it are two other peaks, the North Son and the South Son, and not far from Rabaul are three more, the Mother, the North Daughter, and the South Daughter, the first-named being an extinct volcano. Vulcan Island, with an area of several acres, on the south side of Blanche Bay, made its appearance in a single night in the year 1870, during an eruption of Mount Mother. Earthquakes are of frequent occurrence. The coast is precipitous in some places, in others flat and fringed with coral reefs, but there are several good harbors, the best being Simpson Haven, the inlying portion of Blanche Bay; others are Jacquinot Bay, Arawe, Linden Haven, and Powell Haven. There are no rivers of importance and only a few short, swift streams.

As Neu Pommern, the island formed part of the colony of German New Guinea from 1884 until 1914, when it was occupied by Australian troops. In 1920, it was mandated by the League of Nations to the Commonwealth of Australia, by which country it is now being administered as part of the Mandated Territory of New Guinea. The chief town and former center of administration before its removal in 1941 to Lae, on Huon Gulf on the north coast of New Guinea, was Rabaul, situated on Simpson Haven, which is also a good port with a safe and spacious anchorage for shipping. The bulk of the white population of New Britain, before the Japanese invasion, was settled in or near Rabaul, where sanitary conditions have been greatly improved and which has a fairly healthy climate, although with a rainfall of more than 100 inches. Scattered along the island coast are commercial coconut plantations, and there is a considerable shell-fishing industry. Some roads have been constructed. Before the irruption of the Japanese, the island was divided for administrative purposes into four districts: Rabaul, Kokopo, Gasmata, and Talasea, each administered by a district officer appointed by the administrator of the Mandated Territory of New Guinea.

New Ireland, the second most important island of the Bismarck Archipelago, lies northeast of New Britain and practically at right angles to it. It resembles New Britain in several respects: it is long and narrow, is

very mountainous (highest peak 6,500 feet), and has no rivers of any size. Geologically it is older than New Britain, however, and lacks the definite volcanic appearance of that island. The coast line is fairly unbroken, but there are good harbors at Kaeviang, Namatanai, and Muliama. The island is divided into two districts, northern (Kaeviang), and southern (Namatanai), the latter including the 37-mile-long fertile but mountainous island of New Hanover, the most northerly of the Melanesian islands. The port of Kaeviang boasts substantial government buildings and a wharf capable of berthing ships up to 2,000 tons. Fair roads have been built by indentured native labor.

The native peoples of New Britain and New Ireland as a whole are Melanesian in type and in culture, but among them are groups of Papuans. Moreover, secondary or later influences from New Guinea have had their effect upon the Melanesians; consequently statements made about any one custom may hold for only a limited area, and the physical type varies considerably. The Namatanai of New Ireland, for example, as shown by available measurements, have an average stature for males of 63.7 inches, while the males of Tanga, a small outlying island, have an average stature of 64.6 inches.

The common weapon is the sling, with which stones are thrown considerable distances with great accuracy and force. Wooden spears are also used, but defensive shields are apparently not known. Some war clubs are of polished hardwood, often ornamented with carved and painted designs, but stone-headed clubs, such as are common in New Guinea, are also used. Their plank-built paddling canoes without sails are adapted for coastal and river transport.

The natives utilize food resources of both land and sea. Yams and taro are cultivated, and coconuts and breadfruit are grown. Pigs, fowls, snakes, lizards, crocodiles, birds, and fish supply flesh food. Every tribe must avoid injuring, killing, or eating its totem animal. This food taboo arises from the native belief that ancestors, whose spirits are worshiped or feared, turned at death into individual animals of that species.

In one part of New Britain the natives belong to two main totemic groups, the Sea Hawks and the Eagles; elsewhere the groups or moieties have as totems the praying mantis and a leaf insect. A child belongs to the same totem as its mother—that is, descent is matrilineal; but a man always takes his wife from the opposite totem group, because all the women

PLATE 18

Fighting men of the Melanesian Santa Cruz Islands. Photograph by Merl La Voy.

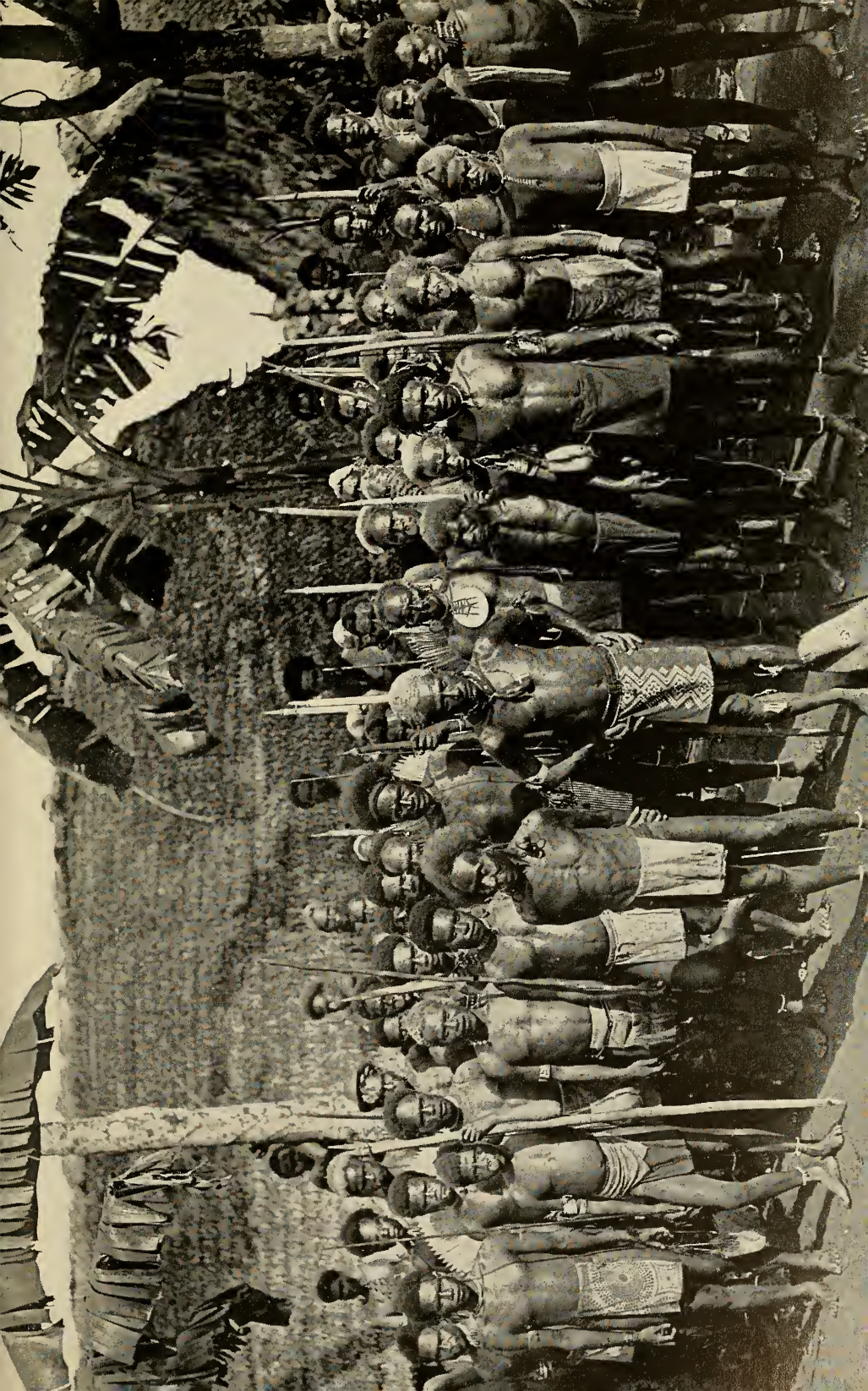




PLATE 19

Upper: Women of Ontong Java (Lord Howe Island). The population of this atoll in the British Solomon Islands belongs to the Polynesian fringe. Note the shaved heads and their general non-Melanesian appearance.

Lower: Man, children, and habitation, Ontong Java (Lord Howe Island).

Photographs by Merl La Voy.





PLATE 20

Upper: Village of Mbau, Fiji.

Lower: Footbridge, Navuso, Ruva River, Fiji.

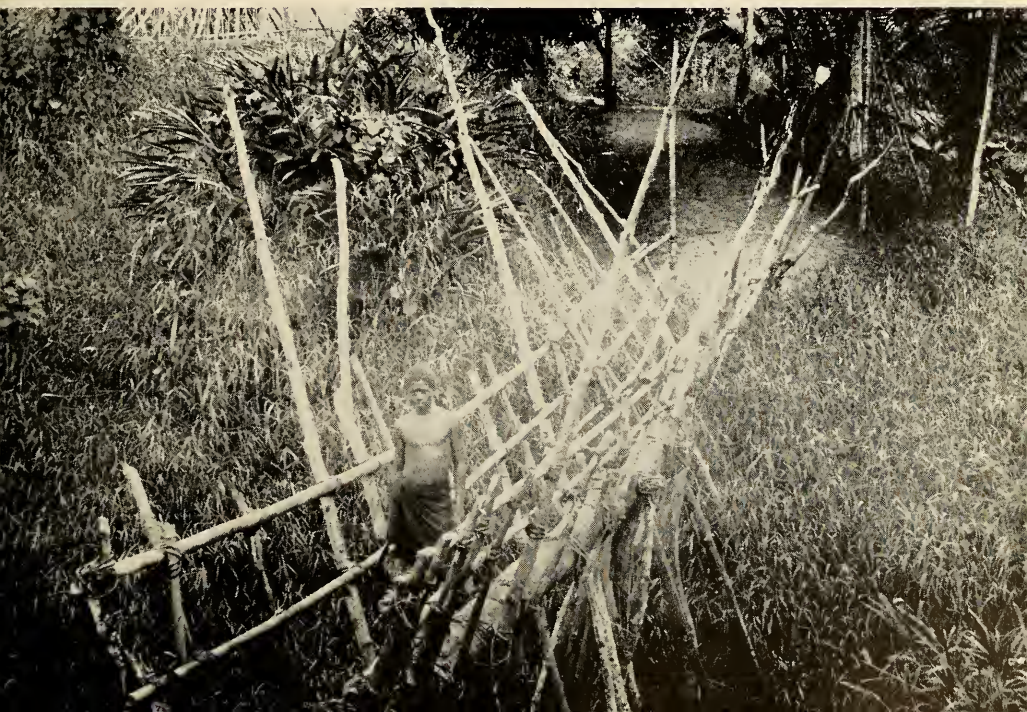




PLATE 21

Left: Woman of
Kambara Island, Lau
group, Fiji.

Right: Saloti, a wo-
man of Tokalau vil-
lage, Kambara Island,
Lau group, Fiji.



of his own group, being descended from his own totem, are therefore his "sisters."

In New Ireland, totemic beliefs are enshrined in white chalk figures of men and animals, and in elaborate memorial carvings, *malagan*, which frequently symbolize the tribal totem as well as the person commemorated. The term *malagan* applies not only to the memorial carvings, but also to the elaborate ceremonial feasts with which they are associated. The feasts, like the carvings, are primarily concerned with commemoration of the dead; at the same time, high social prestige accrues to a family which "makes *malagan*" in fine style and with lavish expenditure of food and native wealth. It is not mere ostentation, however; there is a great deal of important ritual and social obligation in the institution, which constitutes a valuable cohesive influence in the community.

In New Britain social discipline is maintained, and the inherent love of ceremony finds expression in the Dukduk secret societies. Dukduk is an ancestral spirit; so at least the women and uninitiated youths are supposed to believe. It emanates or issues from time to time from the men's clubhouses, which are taboo or forbidden to women, in the form of a weird figure—actually a member of the society hidden under a high, conical mask and a garment of leaves (representing bird feathers) extending to the knees.

Dukduk is male, and his female companion is Tubuan, a less elaborate figure. One or the other will caper madly through the village, and since they have general license to strike, beat, or kill, the women and children flee in terror on their approach. Each Dukduk lodge increases its power and wealth through initiating, with elaborate ceremonial and feasts, boys who pay such high fees that they fall heavily in debt and have to work hard in the gardens or at fishing to clear themselves.

The Dukduk inflicts fines on all and sundry for breach of taboos, for a slight to a member, or for infringement of the social code. It also demands considerable fees for "protection" of gardens and property, thus combining the powers of tribal authority with those of an extortionary "racket."

A native "currency" of great importance in trade and the ceremonial life of the Melanesians of New Britain consists of strings of small molluscan shells. The exact source of these shells is a trade secret jealously guarded by the Nakanai people who obtain them on the beach of one of the small islands between New Britain and New Guinea. Throughout the whole of New Britain, and also in New Ireland and the more distant Solomons chain, these shells strung into long chains on thin strips of

cane pass readily as the equivalent of money. The unit of this shell currency is a string of shells measuring the length of two outstretched arms.

The acquisition and retention of wealth in Melanesia is a prerequisite to social climbing and to social prestige, and children are taught this important fact early in life. On the Duke of York Island the concept of interest is well developed, 11 string-of-shells units usually being returned for 10 units borrowed. The local man of influence, the headman, becomes the local village banker. A system of fines for wrongs committed is well recognized. At the conclusion of battle or a season of warfare, there was formerly a reciprocal payment for damage inflicted. Peace could not be made until relatives of the killed and wounded received their just compensation in shell money. An essential difference between such social payments and our concept of reparation payments is that both sides involved in the conflict must agree as to the amount, and payments for injuries inflicted were made not by the group but by the individuals who committed the wrong. No organized police system exists in native Melanesian society strong enough to suppress or punish the individual wrongdoer. Quarreling therefore tends to have serious consequences and to terminate in chronic feuding. Claims to injuries, however, are adjusted by popular opinion, all having a voice in the settlement. Individual aggressiveness, however, tends to overawe public opinion, while the timid and the young are likely to suffer injustice.

As stated above, New Britain and New Ireland were administered, before the coming of the Japanese, as a part of the Mandated Territory of New Guinea, and each island was subdivided into subdistricts. Political divisions, however, cannot coincide in their boundaries with those of native cultures, which in the Mandated Territory number in the hundreds. District officials had magisterial powers supported by armed native police. The police tended to become arrogant and officious, but were careful to conceal these qualities in the presence of white men. Courts were conducted in the pidgin of Melanesia, and natives readily understood the routine of court procedure. In each village the district officer appointed a headman, who usually was also the native headman of the village. This system was taken over from the German administration.

In native society certain crimes such as murder and sorcery cause great public disturbance, but no machinery existed for their adequate punishment. Public opinion supported private vengeance by a kinsman of the injured or murdered individual. Intermittent warfare between villages was not organized but was conducted as a personal raid by one kinship

group on another. Such warfare has been completely suppressed among the coastal peoples, but continues on in the interior. Natives sometimes express regret that the good old days of personal vengeance have passed, although they may derive some satisfaction in a public hanging within their own village.

Native society throughout Melanesia regards as antisocial or as crimes breaches in the pattern of behavior arising out of kinship and the breaking of taboos of religious, economic, or social character. Many of these acts are, according to European standards, not crimes at all and were consequently ignored by the district officer, but since native punishment of antisocial behavior itself comes within the European definition of criminal attack, it was punished by the courts. The immediate effect is the breaking down of native custom and laws for the enforcement of correct social behavior. For example, in one of the districts, at Mewehaven in southern New Britain, a widow at her own express wish was strangled by her brothers on the death of her husband, in accordance with native traditional practice. In this case the court passed the death sentence on the brothers but commuted the death penalty.

Sorcery, being secret, is difficult to suppress, particularly when unbiased witnesses cannot be obtained. Administration punishment was by confiscation and fines. The sorcerer is frequently the agent of the village headman in enforcing taboos, property rights, and social behavior generally, which always involves the enhancement of the position of the headman. When the sorcerer is freed from the control of the village headman and sets off on his own to commit mischief, the headman's authority breaks down and a superstitious people becomes more fear-ridden. The upsetting of a complicated credit structure involving native sense of responsibility and honesty can greatly disturb native society, especially if native forms of chattels and debt obligations are discredited. Native reaction toward adultery, a common offense in the New Britain Court for Native Affairs, varies. Since native opinion is usually satisfied with compensation, punishment of adultery as a crime opens the way for native accusers to get revenge on an individual for an entirely different grievance, adultery being altogether too common to have permitted consideration of the offender as a criminal under native law. Native women frequently allege that a native man "pulled" her into marriage. Such accusations were not treated as rape, since the real matter involved was the neglect of the proper payment of the traditional bride price of strings of shell disks, pigs, and other gifts, to the woman's relatives, who then set up the complaint.

Petty offenses against district regulations, before the coming of the Japanese, involved such matters as failure to pay the head tax of 10 shillings levied on adult males, failure to provide transportation for the district officer, neglect in observation of health regulations, such as not building the proper type of houses in the proper line, persistence in the burial of the dead under the house, and not building fences to keep the pigs out of the houses and the village. For purposes of facilitating the collection of the head tax, the district government discourages the change of residence of individuals from one village to another. Natives generally admit the advantages of organized government and of the cessation of petty warfare and feuding and wish that the district officer's influence extended to the control of the sorcerer.

THE SOLOMON ISLANDS

The Solomons, which lie southeast of the Bismarck Archipelago and east of New Guinea, form a double chain of large volcanic islands. Extending from northwest to southeast, New Georgia, Guadalcanal, and San Cristoval make up the inner or southern line, while Buka, Bougainville, Choiseul, Ysabel, and Malaita constitute the outer chain facing the Equator and the open sea to the north. Actually, the Solomon Island chain is geologically the central part of the great island arc to which belong Santa Cruz, the Banks, the New Hebrides, the Loyalties, and the large island of New Caledonia.

As early as 1875 a number of traders lived on several of the Solomon Islands, a situation which led to the establishing of a British protectorate over the southern Solomons in 1893. This was expanded to include others of the group in 1899 and 1900, after a trade with Germany in which that country relinquished her claims to the central Solomons in exchange for certain rights in Samoa. The northern Solomons, the islands of Buka and Bougainville, former possessions of the German Reich, were mandated in 1920 by the League of Nations to Australia and from 1921 to 1942 were administered as a part of the Mandated Territory of New Guinea.

The Resident Commissioner of the British protectorate of the Solomon Islands is responsible to the High Commissioner for the western Pacific with headquarters in Fiji. The general law of the land is the Order in Council of 1893, plus regulations issued by the Commissioner under powers conferred by that order. The order is concerned essentially with suppressing trade in firearms and intoxicating liquor and with the regulation and procurement of labor for plantations and public works such as road

building. The Resident Commissioner of the Solomons had his capital on the 2-mile-long island of Tulagi, the smallest capital in the British Empire.

Tulagi, in the shelter of the larger, nearby island of Florida, north of Guadalcanal, is approximately 350 miles from Kieta, on the island of Bougainville, the capital of the northern Solomons mandated to Australia. The government officers are housed in a number of white-painted wooden buildings with red-painted galvanized-iron roofs. Before the coming of the jeep there were no streets in this capital city; travel was entirely by boat or on foot. Tulagi's large, mile-square harbor, though very beautiful and sheltered, is too deep for ship anchorages. In the harbor lies the smaller island of Makambbo, where a trading company has its warehouses, and 3 miles away is Gavatu Island, the property of a soap company. Communication with the outside world was by a vessel plying periodically between Sydney, 1,800 miles distant, and numerous other island trade outposts.

On January 23, 1942, a Japanese seaplane landed at Kieta, on Bougainville, and a Japanese officer planted the flag of the Rising Sun on the beach. A week later Tulagi was bombed. Japanese landing parties soon followed, but on May 7, 1942, the Allies destroyed their warships in Tulagi harbor. Since that time the Allies have repeatedly bombed the Japanese installations and airport at Kieta. On August 7, 1942, they drove the Japs out of Tulagi and, on February 5, 1943, after a 6-months' almost continuous battle, out of the not far distant island of Guadalcanal and the Russell group.

Within the protectorate 50,000 acres are now given over to the cultivation of coconut trees. The dry meat of the coconut—copra—is the most important export, but woods of various kinds, ivory-nuts, trochus shell, and bêche-de-mer are also exported. Europeans and resident Asiatics may hold land under various titles either in freehold or by lease. Land acquired by foreigners prior to the fundamental law of the land, namely, the Order in Council of 1893, is recognized by the Crown, and the Resident Commissioner has proclaimed as Crown lands all areas not required by natives. Such lands may be leased from the Crown. Additional land may be obtained by private concerns direct from the natives, however, under government supervision. The British Government has always been on the alert to prevent private encroachment on lands actually required for native gardens and other uses.

The principal employer of labor in the South Solomons is the firm known as Lever's Pacific Plantations. Coconut plantings of this concern are found on practically all the islands except Malaita. The largest is in

the Russell Islands, west of Guadalcanal, partly because the native population there has died out and left the land available for planting. Employers and managers have been permitted to return to their plantations in areas where the Japanese have been removed.

The total native population in the Solomon Islands protectorate is slightly less than 100,000, of which over 40,000 dwell on the southern island of Malaita. Great variation in physical type appears throughout the archipelago, and numerous mutually unintelligible native dialects and languages are spoken. The young men of the various districts of a single island when assembled on a commercial plantation have difficulty in making themselves understood.

Unlike the Polynesians, the Solomon Islanders did not at first extend hospitality to visiting Europeans. Even harmless strangers were, when possible, invariably put to death. In the 1880's several European vessels were attacked in the Solomons, and the entire crews of five ships, as well as a number of French scientists, were killed. The indiscriminate murdering of sailors continued until the Solomons were made a controlled area under a British protectorate. As early as 1845 French Marist missionaries, including a bishop and a number of lay brothers, were killed on San Cristoval. A successful mission was somewhat later established by the Church of England in the Banks Islands southeast of the Solomons. Because of this initial success, the language spoken on Mota, one of the Banks islands, became the quasi-official language of this English mission throughout Melanesia. Christian missions have continued to operate throughout the Solomons and now have training schools at various places. Native teachers receive instruction in the Church of England at Siota College on Florida Island.

Throughout the Solomons the average stature of males for whom measurements are available is 63 inches. The people living in the western Solomons are coal black in skin color, while those of the eastern islands are somewhat lighter in color, and in Malaita much lighter. In Malaita the color of hair is usually brown, not black as in the western islands. It is actually sometimes chestnut or straw-colored, and these lighter colors are artificially obtained in other islands through the use of hair bleaches. Throughout the group the hair is coarse in texture and tends to stand out in a mass. On the western islands the frizzy hair mop of the women vies with that of the men, but in Malaita, as in the marginal island of Ontong Java, women shave the hair. In the eastern islands, particularly in Malaita, the nose is not so broad as in the western islands, where it tends to approach in form that of the Australian.

In skin color the natives of Buka and Bougainville are dark, with a reddish hue appearing in some individuals. The scalp hair is very thick, and this attribute, combined with the characteristic frizziness, accounts for the moplike coiffure. The hair is trimmed short—much shorter than elsewhere in Melanesia. Black hair, when bleached with lime or ochers, may assume a red or yellowish shade, and when an individual wishes to dress up, black or red paint mixed with coconut oil is applied freely to the hair. Eyes are dark brown, the Mongolian fold being present in some individuals. Noses have a pronounced bridge. Mothers do not like their children to have flat noses and consequently pinch the noses of infants to correct this tendency. They also press the sides and the back of the head to elevate the crown and to make its sides straight. However, no head binding or bandages are applied, as in New Britain. Although teeth are frequently missing, there is no ceremonial removal or mutilation of the teeth. Tattooing is not practiced in the western Solomons as it is in eastern Melanesia, but scarification, that is, the producing of bodily design by raising scar tissue, is widespread. In men the pattern covers only the upper chest area; in women it is continued over the abdomen and thighs, and some individuals are scarified on the face. Rebellious youth has brought this practice into disuse in many villages. The ear lobe and the septum of the nose are pierced for the insertion of ornaments.

Coastal villagers and the population of the islets have forgotten much of their native culture and have abandoned their traditional ritual and way of life. Women no longer go out to work in the gardens as do those of other parts of the Mandated Territory.

The coast of northern Bougainville is rocky and protected by cliffs, below which along the beach are native villages, although some are located on top of the cliffs. A coastal road was by government order kept clear by the women of the villages. The usual coral reef borders the beach, and in the jungle back of the cliffs are the taro gardens. The interior of Bougainville beyond the taro gardens is a succession of ridges which become mountain chains toward the interior and are largely unexplored.

Rainfall is heavy, but as Bougainville lies within the equatorial belt of calms outside the hurricane belt, there are no typhoons. Prevailing winds from the southeast are moisture-laden, and there is little interruption of the growing season throughout the year. Rain water collected in shallow pools is shared with the pigs and dogs and is consequently germ-laden.

Taro roots are roasted in the embers in a pit oven filled with heated stones, or boiled in a blackware pot. Pottery-making villages are Malasang on the east coast of Buka, and Buin on the south end of Bougainville.

Pots are bartered throughout the islands, and fish and taro are exchanged between the coastal and the mountain villages. One half-smoked fish has an established value of six taro roots.

Cuscus, which resemble the opossum, are hunted from their hiding places in trees at night with the aid of coconut-leaf torches. Wild pigs are also hunted, but frequently without success. Shellfish and crabs are collected on the reefs, and the land crab is also relished. A change from a steady diet of taro is provided by breadfruit in season, and coconuts are consumed as food and drink.

Fishing with kites, *vavatoa*, is fairly successful in catching garfish with a spider-web lure. Bonito is caught with a composite hook of cut clam shell provided with a tortoise-shell barb, pieces of octopus being the usual bait. Communal fishing with the aid of nets is undertaken on the reef, and basketry fish traps are thrust into shallow water to catch small fish which come in shoals. Much magic is considered essential to catch fish, especially the bonito.

The plank canoe, similar to that of the southern Solomons, is used, as well as a dugout with single outrigger. The seaworthy *mon*, formerly the war canoe of the Buka people, is used on pig-purchasing expeditions to the island of Nissan.

Everyone on Buka and Bougainville chews the betel nut and smokes. Pipes of clay are made in some villages, but the trade pipe has also made its appearance. Although some tobacco is grown locally, the stick tobacco of commerce is preferred and has become staple currency.

Social climbing and the giving of feasts bigger and better than any provided by rival climbers is the primary ambition of a village self-made man. Hereditary position, important in Polynesia, plays no great role here; the social climber must show that he has surpassed his rivals in the distribution of food and gifts. The greater the feast provided by the social climber, the more he is permitted to have the drums beaten in his honor and the more likely he is to become a village leader or chief.

The use of the wooden drum, or *tui*, is widespread throughout Melanesia. When the *tui* is used for signaling, it is struck sharply near the top center with a beater consisting of a number of strips of the lawyer vine (*Calamus australis*) bound together at the striking end but loose at the other. On the Pororan Islands off the coast of Buka, the northernmost of the Solomons, the signaling code, like the Morse code, consists of long and short beats. When used as a signaling drum, the function of the *tui* might be compared to that of a local newspaper. For example, the arrival of a stranger of importance is signaled — — —

.....; a death is signaled — — — — —
 — — — — — — — — — —; announcement that the bride
 price has been paid for the purchase of a wife is somewhat more lengthy,
 the opening signals for which are — — — — —... ..—.....
 — —..... ..— — — — — — — — — — — — — — —. The
 signal for annoyance is a number of long beats. Characteristic annoyances
 thus announced have to do with the failure of a wife to cook the taro
 properly, the death of a pig, or similar personal grievances which the
 signaler wishes to make public. Other characteristic signaling by means of
 long and short beats on the *tui* have to do with a call by the chief, various
 stages of house building, or of the preparation and progress of a feast
 such as the tying of the pigs, cooking of the taro, killing of the pigs,
 counting of the food to be consumed at the feast, the theft and killing of
 a captive. Counting by signaling is —.—.— repeated for each unit
 counted up to nine, beyond which this elaborate unit is somewhat shortened.
 This system of number signaling has been developed in some of the
 other outlying islands of the Solomons to the extent that the arrival of a
 government official is relayed from village to village even to the number
 of carriers, police, supplies, and other details.

Guadalcanal, 80 miles long and 25 miles wide, may be described as
 one of the exposed summits of a submerged mountain chain. On the
 southern side the hills rise directly out of the sea, but the northern slope
 is more gradual, forming a shelving plain narrow at the eastern end but
 broadening out farther along the coast. The highest peak is Popomanasiu,
 over 8,000 feet in height, but several others rise to over 6,000 feet. The
 temperature and the humidity are always high, and rainfall is heavy—
 Longgu on the north coast, where much of the fighting with the Japanese
 invader took place, has an average annual fall of 200 inches. Several
 crocodile-infested rivers, among them the Mantani-kau near Henderson
 Field, carry a considerable volume of water. The mountainous core of
 the island is extremely dissected, making travel inland very difficult.

Mendaña related in the sixteenth century that miles upon miles of
 houses were seen in Guadalcanal. This was, no doubt, an exaggeration,
 but the native population was formerly much greater than it is today. The
 Protectorate Blue Book gives the present population as over 14,000, but
 most of the inhabitants live near the coast, and the hills everywhere are
 only sparsely settled. The birth and death rates at the present time are
 approximately equal.

About 20 dialects are spoken on the island, but there are only three
 types of social organization. The people of the eastern tip have a semi-

patrilineal organization similar to that of Malaita, while those of the coastal plain and the western end have matrilineal clans, usually five in number. The remainder of the island is occupied by various linguistic units, all with a dual organization.

The hill peoples everywhere are divided into two moieties (*rau*) called respectively Manulava (big bird, meaning the eagle), and Haravu and Manukiki (little bird, meaning the hawk). A myth relates how the two groupings came into being. The island was built up out of the sea by two men, Tzatzta and Tzili, and when they had finished they planted two seedlings, one, the ficus (*sambaba*) the tallest of tropical trees, and the other the cordyline (*tzili*). An eagle alighted on the ficus and laid two eggs, out of which sprang a man and a woman, and simultaneously two leaves fell from the cordyline and also changed into a man and a woman. The cordyline man married the eagle woman, thus giving rise to the Manulava moiety, and the eagle man took the cordyline woman, thus founding the Manukiki group. Subsequently a sky spirit, Sivotchu, gave them pigs and all other living things.

Guadalcanal is divided up into named districts associated with different clans. Each clan has an affiliation of this kind with several districts, and the members have the right to erect a dwelling and cultivate a garden in any one of them. Although descent is traced through the mother, marriage, nevertheless, is patrilocal, and if a man wishes to go and live on his clan land he has therefore to leave his father's house. In practice only a minority do this, and the result is that the inhabitants of any district belong to several clans.

There are no hereditary headmen, and authority is exercised by individuals who possess more than average ability and who have accumulated and then distributed quantities of wealth. Such men are spoken of as *tauvia*.

People formerly lived in small homesteads with three or four families in each. The administration of the protectorate has given orders that these settlements should be centralized, and a village was accordingly built in every district. These are occupied, however, only when the district officer is on patrol.

Wealth consists of garden produce, pigs, and "ceremonial currency"—that is, strings of shell disks and porpoise and dogs' teeth. The chief crop is taro, which is grown the whole year round, but yams are also important, though they ripen only at one season of the year. Taro is cultivated without much ceremony, and as a rule each man has his own plots separate from those of his neighbors. The forest is cleared of heavy timber

by the man himself, assisted perhaps by a relative or two. He makes a stout fence to keep out the wild pigs while his wife burns up the rubbish. Planting is done by either sex, but weeding and digging the crop are women's work.

Yam gardens are generally a community affair, and the whole district collaborates to clear one big plot. The *tauvia* or some magician under his direction first recites spells to drive out the evil influences of the forest, and then all the menfolk set to work and cut down the trees. The whole area is then fenced and the women burn the rubbish. The *tauvia* next divides the garden plots among his followers, giving each one a separate area. Boundaries are indicated by small fences to prevent subsequent disputes. The seed yams are brought from the village, and again spells are recited, this time to ensure that the crop will be prolific. After this the tubers are planted, and from then on until the whole garden is ready for harvesting consumption of yams is strictly forbidden. When the crop is ripe, the whole district goes fishing in one of the many rivers. The catch is brought to the garden and cooked, and each man goes and digs two or three tubers from his plot. A ceremonial meal is eaten together, and the harvesting begins on the following day.

A third important crop is the canarium almond, which does not require cultivation. These nuts grow on immense trees, and if a man works alone he may be occupied for a couple of days in stripping only one. Usually three or four neighbors work together, stripping each other's trees in turn.

In addition to his gardens each man also has his pigs. They are allowed to wander about the countryside but are trained to return for feeding early in the morning and at night. In former days they were taken into the dwelling house to sleep, but the administration has made this a criminal offense. Pigs are killed for sacrifices to the ancestors and also on the occasion of feasts, but they are also useful for trading purposes. Barter transactions are carried out through partners—each hill man is in partnership with someone on the coast.

Shell disks are regarded as more valuable by the bush people than by the coastal natives, as they are naturally more difficult to obtain in the interior. A string of disks 6 feet long is worth 4 or 5 shillings on the coast, but 10 shillings inland.

Throughout the Solomons, magic causing death or sickness is applied by indirect means—by hiding charmed portions of the victim's person in the house to be withered by smoke, by shooting malign influence into him, or by other means. However, a peculiar form of magic known as *vele* is practiced in Guadalcanal, the adjoining small island of Savo, and

the Russell Islands. The sorcerer makes a point of telling his name to his victim, and then assaults him.

The word *vele* means "to pinch," with reference to the tingling or pinched feeling in the arms that warns protected persons of the proximity of the *vele* magician. The object in which the magical power of the *vele* resides is the *vasa*, a small container of fiber with an assortment of articles which must include one standard ingredient—earth from the island of Rauna in the Russell group. A typical *vasa* contains this sacred earth, pieces of shrub or creeper, a man's tooth, and a short piece of native shell money. These articles are taken from the sacred ground inhabited by the magician's ancestral ghost to whom he makes sacrifices, or are articles which belonged to this ghost in life and which, impregnated with his *nanama* or *mana*, are powerful and dangerous. The *vasa* is taken by the magician to this sacred ground and is "made alive" by invocations. It is then ready for its deadly work.

The usual method employed by the sorcerer is to hide by the side of a path and, as the victim approaches, to attract his attention by making a sharp noise. The victim turns and, seeing the *vasa* suspended from the sorcerer's finger, collapses, usually in an unconscious condition. The sorcerer forces earth, rotten wood, grass, and similar rubbish down his throat and then swings the *vasa* so as to touch lightly particular parts such as the head and shoulders, which immediately become crushed internally without leaving any trace or mark on the skin. He then brings him back to consciousness by placing under his nose *ria* (which may mean not only the ginger plant but almost anything with sacred and dangerous associations). The sorcerer then tells the victim to go home. He returns to his village apparently suffering from an attack of fever, but he never mentions what has occurred. Usually within 3 days he is dead. The tradition of terror with which the "attack" is invested, plus the effect of putting injurious vegetable matter into a man's stomach, is fatal when aggravated by his inflamed imagination.

THE SANTA CRUZ ISLANDS

The Santa Cruz group of the British protectorate of the South Solomons is a scattered archipelago of small volcanic islands irregularly disposed from northwest to southeast, between 8°31' and 11°40' S. latitude, south-east of San Cristoval in the Solomons, but separated from that island by a deep channel. The following islands are included: The Duff group, Matema or Swallow Islands, Analogo, Tinakula or Volcano Island, and Nimanu. From these a single chain curving southeast and then east

comprises Nitendi or Santa Cruz proper, which is the largest island, Tapoua or Edgecombe, Vanicoro (the scene of the wreck of La Perouse's ships), Ticopia, Amida or Cherry Island, and Fataka. The islands were discovered by Alvaro Mendaña in 1595, and in 1767 Philip Carteret visited them and called them the Queen Charlotte Islands—a name by which they are no longer known. A British protectorate was declared over them in 1898.

The total area is but 380 square miles, though the native population is estimated at 5,000. The natives are of Melanesian stock except in the Duff group, Ticopia, and Amida, which are inhabited by lighter-skinned Polynesians. Nitendi or Santa Cruz Island has a population of about 1,200 inhabitants. The seat of government, Vanicoro, has a population of but 60 natives.

Much of the land in this group has in recent years been leased by a lumber firm interested in cutting the kauri timber. Since natives are not interested in working in the lumber camps, as they are able to make enough money to pay the annual 20-shilling head tax by diving for trochus shell, a much more pleasant occupation, laborers have to be recruited from neighboring islands, including the Solomons. There is some trade in copra.

In Vanicoro there are volcanic mountains up to 3,030 feet in height, and Tinakula has a still active volcano. Nitendi is less elevated. Coral reefs are not extensive except around Vanicoro. The islands are densely wooded, the flora and fauna being akin to those of the Solomon Islands. The climate is hot and moist, and storms are frequent.

The area within this group, where the strange "currency" known as *tau* or red feather money was used originally, included Santa Cruz or Nitendi Island, the Duff and Wilson groups, and the Reef Islands. Today Santa Cruz Island is the sole source of this "currency," although the birds from which the feathers were obtained were formerly caught in all the islands and the feathers brought to Santa Cruz for barter. The bird whose plaited feathers are used as barter "currency" is the scarlet honey eater, *Myzomela cardinalis*, a small bird about the size of a sparrow. It is captured by means of a perch trap consisting of a bamboo pole with a heavily gummed cross stick at its apex. The hunter, after fasting to insure success in hunting, places at the top of the pole a male bird decoy fastened to a string running through the center of the bamboo pole, and then secretes himself under a camouflage of leaves. The fluttering of the decoy attracts the bird, which alights on the cross stick and becomes entangled in the sticky substance with which it is coated.

According to native tradition, shell money also was formerly used, as

in the western Melanesian islands. Feather money being much less durable than the almost indestructible shell money, which only requires restringing, it may be assumed that the red feather money represented currency of a higher denomination used in the purchase of canoes, payment of bride price, or the payment of large fines. Four coils would purchase an ocean-going canoe, and an industrious bride might be had for the bride price of ten. Each unit of feather money is fashioned in the form of a long belt of fiber, with two strong cords as a base. Throughout its entire length the belt is covered with overlapping scales of dove feathers which have attached to their upper surfaces delicate red feathers. The underside is an interlaced pattern of checker basketry weave. Attached to the coil or belt, which may be as much as 30 feet in length, are pigs' teeth and stones having a religious significance, that is, inherent supernatural power or *mana*. The elaborate craftsmanship shown in the decorative belt-ends resembles that revealed in the end sections of body belts made by the natives of the island of Ruk in the Micronesian Carolines and by those of the island of Ontong Java northeast of the Solomons. Presumably, therefore, *tau* originated not as currency but as a belt for use or bodily adornment. Its length and ornamentation gradually was increased to enhance its purchase value. The ownership of such a belt increased the prestige of the owner. The appreciation of red color as an attribute of the gods is reminiscent of the elaborate red feather capes formerly worn by Hawaiian chiefs.

In the Santa Cruz Islands totemism and its accompanying social system exists in a relatively simple, unmodified form. The totem object may be a plant or an animal, in which case it must not be used for food or injured in any way; if the totem should be a domestic object, the members of the clan must deny themselves the use of it. The members of the grass clan, therefore, may not walk on grass, and those of the bowl clan may not eat food cooked in a wooden bowl. The latter is the totem of the descendants of a woman who floated to the island in a bowl.

In the Santa Cruz Islands we find the southern limit of the betel-chewing habit; at the same time, ceremonial *kava*-drinking, a typically Polynesian social custom, is common and is associated with the successful cultivation of taro.

An important borrowed contribution to Santa Cruz culture is the weaving loom, which elsewhere in Melanesia has a limited distribution. This hand loom is similar to that generally used by the eastern Micronesians and is considered to have reached Santa Cruz through the Caroline Islands. Finely woven mats and garments with attractive, close-meshed patterns are made from the fiber of a specially cultivated species of banana.

The adz, the most important tool, is fashioned from shell instead of stone, since the shell of the *Tridacna*, or giant clam, is more durable and provides a better cutting edge than available varieties of stone. The rather crude quality of wood carving, with its immature, half-hearted stylized animal forms, may have been due to the use of ineffectual tools, or perhaps to the influence of traditional weaving patterns. Even the red, white, and black painted patterns are angular and formal.

In the Santa Cruz group the dugout outrigger canoe has a long, narrow hull, incurved at the top with only a narrow, slitlike opening covered by a long plank closely fitted as a lid or deck to keep out the water. The outrigger platform is unusually large and carries a small house or shelter for the crew. In this canoe, with its large triangular sail, long voyages between the islands are made. Smaller longshore canoes lack the hull cover and the sail; sea trips are occasionally made in them, but they are primarily lagoon and fishing craft. One interesting method of reef fishing resembles that of the Gilbert Islander. Large sharks are attracted by rattling coconut shells against the canoe side, and as one swims past, a noose is slipped over its head.

Painted and tasseled dancing clubs are used in the Santa Cruz Islands; men are fully equipped both for warfare and hunting with a bow and a set of bone-pointed arrows. Melanesian arrows have been reported as being tipped with poison, a reputé ascribable perhaps to the natives' own fear of the death-dealing magic they carry.

THE NEW HEBRIDES AND BANKS ISLANDS

This group of islands to the northeast of New Caledonia, under French and British joint administration, has a combined area of about 5,700 square miles. The important islands are: Espiritu Santo, Aurora (Maiwo), Leper's Island (Aoba or Omba), Ambrym, Api, Sandwich Island (Efate), Eromanga, Tanna, Aniwa, Aneiteum, Pentecost (Aragh or Raga), and Malekula (Malikola). The population includes 40,000 natives, 934 Europeans, and 2,184 representatives of other nationalities, mostly Indo-Chinese.

The Portuguese Pedro Fernandez de Quiros, in 1606, sighting Espiritu Santo, one of the largest islands of the group, thought he had discovered the great southern continent then believed to exist and named it Australia del Espiritu Santo. Louis de Bougainville visited the islands in 1768, and in 1774 Captain Cook gave them the name they bear. Subsequent visits of several explorers, the exploitation of the sandalwood and other products by traders, and the arrival of missionaries opened up the islands

to commercial exploitation by the middle of the nineteenth century. Trade was mainly with New Caledonia, and France thus became the dominant power in the New Hebrides. Even British planters pressed France to annex the islands in 1876, but in the following year some of the missionaries urged the same course on England. In 1878 the islands were declared neutral by Great Britain and France, but the presence of British and French settlers under independent authority led to unsatisfactory administration, especially in regard to the settlement of civil actions and jurisdiction over the native population. French commercial interests clashed with those of Australians, and in 1882 M. John Higginson, of New Caledonia, founded the trading society which afterward became the *Société Française des Nouvelles-Hebrides*. An Anglo-French convention of November 16, 1887, provided for the surveillance of the islands by a mixed commission of naval officers. A clause in the later Anglo-French agreement of 1904 provided an arrangement for proper jurisdiction over the natives and for the appointment of a commission to settle disputes between British and French land owners.

In 1906 a convention was signed in London providing that "the group of the New Hebrides, including the Banks and Torres Islands," should form a "region of Joint Influence" in which British and French subjects should have equal rights in all respects and each power should retain jurisdiction over its own subjects or citizens. A British and a French high commissioner were appointed, each assisted by a resident commissioner; provision was made for two police forces of equal strength. The high commissioners were given authority over the native chiefs. A joint court was established, consisting of two judges, one each to be appointed by Great Britain and France, and a third, to be appointed by the King of Spain and neither a British subject nor a French citizen, to be president. The convention provided for the erection of fortifications and against the establishment of a penal settlement. A later agreement, ratified by France and England in 1922, provided regulations for the recruiting of native labor. The capital of the Anglo-French condominium is at Efate, which has two excellent harbors.

The Banks and the Torres Islands constitute irregularly located islands arranged somewhat in the form of a Y situated at the northern end of the New Hebrides. With the exception of the small low-lying Torres group, most of the New Hebrides Islands are volcanic. Since the shores of the islands rise abruptly from deep water, the coasts are almost free from coral reefs. The island formation is mostly basalt. Earthquakes are common, and there are several active craters, one of which, on the island

of Espiritu Santo, reaches an altitude of 6,169 feet. Mineral deposits include iron, nickel, and copper. The fauna is, as might be expected from its location, less abundant than in the Solomon Islands.

The natives of the New Hebrides vary somewhat in physical type, and there are two distinct social groups. Those of the part of the archipelago lying north of Malekula and Ambrym Islands have matrilineal descent and practice circumcision or incision, while in the islands mentioned and in Eromanga, Futuna, and the other southern islands of the group, patrilineal descent is recognized and circumcision or incision are not practiced.

Cannibalism was formerly general on every island of the New Hebrides. Certain ceremonies required human flesh. More recently the pig has become the substitute ceremonial meat. The most inveterate cannibals were the hill folk of the island of Aoba, who were also traders in human flesh. The victim was taken by strangling with a cord, after which the body was quietly carried away. Cannibalism persisted here to about 1920. Individuals were captured, preferably women, and fattened for slaughter. On the island of Pentecost there are still occasional cases of cannibalism, while on Malekula cannibalism remains fairly prevalent, according to Corlette, who has resided in the New Hebrides since 1903.

The ceremonial ground near the men's house (*gamal*) has a number of large carved images of men or birds. These carvings are merely the visual representations (*malagan*) of the spirits and are not worshiped as idols. Not all spirits are the souls of departed relatives, although these among others are propitiated by prayer. Most of the spirits are unfriendly but can be made friendly by offerings and prayer and through native obedience to certain rules. When a man is asleep, his soul departs temporarily. The soul is similar to a shadow, and a man may be killed by stabbing his shadow with a weapon of human bone. After death the soul spirit hovers near the body and may visit the scenes familiar during life in the body. It enjoys playing pranks on the living such as throwing stones at them. An intelligent native New Hebridean makes the statement that "we natives are fools in our attitude to the ghosts of the dead. We fear them greatly, we make many things that they should depart and not harm us. Yet we make offerings to them, we entreat them to make all things come good, to make us strong, to give us many and healthy children, to make our gardens yield and our pigs produce, and to cure our sickness." The New Hebridean is actually most concerned with obtaining and slaughtering pigs, with problems of social prestige which is dependent on wealth, and with the obtaining and keeping of women. In practice, therefore, his religion is limited or stimulated by selfish emotions.

The system of graded classes, the *sukwe* in the Banks and Torres Islands and the *mangke* or *mak* in Malekula, Ambrym, and in the southern islands, controls the economic life and the social rank of each individual male native. Entrance is in the lowest grade in infancy, and progress is limited by barriers to advancement readily hurdled only by the rich. Even in the men's house each grade has a compartment that is taboo to all other classes, failure to observe such taboos being punishable by fines or death. Ceremonies surround the passing from one grade to the next. Payments in pigs and shell money are made for access to additional rights and privileges or for the use of articles made or used in connection with the grade initiation ceremony, such as badges to be worn by members of each grade, new drums, or carved images, and for the planting of a commemorative croton or dracaena tree.

The spirits of the upper classes become spirits of a higher grade. Different funeral ceremonies and modes of interment are practiced for these advanced classmen. Bodies of chiefs are smoke-dried, the head removed and plastered with clay, mounted on a stick, and placed in the men's house. In pidgin English the members of the lowest grades in the social scale are known as "rubbish men." Although many of the classes have fallen into disuse, there still remain about five ranks or grades in most of the New Hebridean islands. The cost for membership in the lower grades is small, namely, a pig or two. The degree taken in childhood must be financed by the child's parents. A man of very high rank kills a number of pigs sufficient to enter his son in his own grade while still a child. The cost increases for membership in the higher grades, while the highest cannot be entered for a mere money equivalent. Requirement to enter the highest grade may be the ownership of a pig having four freak tusks, and may also involve certain qualities of leadership.

Initiation ceremonies are great events. Assembled foodstuffs such as yams and pigs are in proportion to the number and rank of those to be initiated or elevated in rank. For days prior to the ceremony dancing and the singing of stories about their ancestors have been under way. It is also the time for the payment of pig debts. The pig-returning and pig-receiving ceremony with its reciprocal ceremony of returning unwanted pigs, and the payment in pigs for services rendered is one of the most characteristically dramatic of surviving Melanesian customs. Taking a leading part is the pig magician, who by his spells and incantations puts it into the heads of debtors to repay their debts, and of friends to contribute liberally of pigs of good quality.

On Leper's Island in the New Hebrides, as elsewhere in Melanesia,

the boy leaves his maternal home before reaching his teens and moves to the men's house, where he sleeps and takes his meals. He may still occasionally visit his mother and beg for additional food. He must, however, avoid his sister when eating. If he should meet her by chance, she must run to conceal herself; even her name must not be mentioned. This principle of avoidance in Melanesian conduct begins with the pubertal ceremony. About this time even the mother must begin to observe avoidance and not give the boy food herself, nor may she address him familiarly as a mother would, but uses formal address.

Elsewhere in Melanesia, in New Britain and New Ireland, brothers and sisters similarly may neither approach nor touch each other, although they may speak to one another at a distance. In the Fijis, the avoidance restrictions are still more severe. The avoidance principle is carried still further in relation to the mother-in-law. In the Banks Islands, for example, if a man should by chance meet his mother-in-law on a path, she must step aside and turn her back until he has gone by. A man is not permitted by custom to walk along the same beach where his mother-in-law has walked before him until her footprints have been washed away by the incoming tide. As a part of this avoidance concept, a Banks Islander may not speak the names of brothers or mother-in-law.

NEW CALEDONIA AND THE LOYALTY ISLANDS

New Caledonia, a mountainous island and the second largest in Melanesia exclusive of New Guinea, lies in the Coral Sea 750 miles east of Queensland, Australia. Roughly the size of New Jersey, the island has a comparatively sparse population of 60,809. It was discovered by Captain Cook in 1774, and exploration of the coast line was completed by d'Entrecasteaux in 1791. New Caledonia was annexed by France in 1853 and governed as a part of the French Establishments. In 1860 it became an independent colony to which the Loyalties were added in 1864. A penal settlement was established there in 1883.

New Caledonia is approximately 220 miles in length and rather narrow, never exceeding 25 to 30 miles in breadth. From 5 to 15 miles off the west coast is an almost unbroken coral barrier reef, affording a navigable channel along this entire coast, while on the east the barrier reef is abrupt and broken to such an extent that navigation along that shore is extremely hazardous. The Isle of Pines, lying about 30 miles from New Caledonia's southeastern extremity, is geologically a continuation of that island. With the exception of the northern and southern extremities of New Caledonia, where parallel mountain ranges enclose valleys, the island is essentially a

confused mass of mountains and cross ranges that reach an extreme elevation of 5,387 feet. The variety of its minerals is attested by the presence of chromite, cobalt, nickel, iron, manganese, antimony, copper, gold, and others. The mouths of the rivers are navigable and are surrounded by comparatively small fertile plains. The coast line is broken by numerous small bays into which empty streamlets that have frequently been diverted by the natives for purposes of irrigation. New Caledonia is cooler than other island groups within Melanesia. This is attributed, of course, to the fact that it is farther from the Equator and practically touches the northern limit of the South Temperate Zone, having a climate, therefore, somewhat like southern Florida.

The governor, before the outbreak of the war, was assisted by a privy council composed of the heads of the judicial, military, and other services, and two outstanding citizens appointed by the President of the French Republic. Each of the five districts was supervised by a police officer and administrator who held the rank of sergeant in the French army. He corresponded to the district officer in British Melanesian islands. An elective general council was provided for. The capital and only modern port, Noumea, has a separate municipal government.

New Caledonia is also the seat of government for the geographically dependent Loyalty Islands, Wallis Archipelago, the Isle of Pines, Huon Islands, Futuna, and Alofu. The Loyalty Islands, a cluster of coral islands directly south of the New Hebrides, parallel New Caledonia at a distance of between 50 and 100 miles on the northeast. This group consists of 3 large islands, Maré, Lifu, and Uvéa, which nowhere rise more than 250 feet above sea level. The largest of the group, Lifu, is 33 miles in greatest length and 28 miles in greatest width. Uvéa atoll has as its circular rim many closely connected islets together with the much larger island of Uvéa itself. They were discovered by Captain Butler about 1800. Coconuts, copra, and rubber are exported.

New Caledonia exports coffee, cotton, guano, copra, and minerals. The only railway of the island, which has been reconditioned by U. S. Army engineers, connects Noumea and Paita, and a dirt-surfaced road extends the length of the island along the west coast. Local currency has been pegged at an exchange rate of 43 Noumea paper francs to the dollar. The Australian pound (£A) has an exchange rate of slightly more than one £A to three American dollars. A local pidgin French has grown up and is in widespread use throughout the island, although quite recently pidgin English and American English have begun to replace it as a contact speech. As in the British Solomons and in the controlled area of

Mandated New Guinea, restrictions are placed on the free movement of people from one place to another.

In 1939 New Caledonia's population of 60,809 was divided as follows: 29,178 native Melanese, 9,088 Javanese and Annamese, 3,756 Indo-Chinese, 1,430 Japanese, 45 Hindus, and 17,312 Whites.

Forty thousand convicts were transported from France to New Caledonia between the years 1864 and 1894, when deportation of convicts to that island ceased. The four distinct classes of convicts deported were political, ordinary prisoners whose sentences were 8 years or more of hard labor, habitual criminals, and the so-called *libérés* who were free to move about as they chose but were nevertheless confined to the island. Very few of the old convicts remain, but their presence on the island has made the free movement of colonists to New Caledonia uninviting. Little was done by the French Government to counteract the general impression that the island was suitable only for convicts, although it might have furnished a livelihood for many thousands of free Frenchmen.

Many Javanese and Tonkinese have been imported to work in the mines, since miner's pay has not been a strong enough lure to attract the native New Caledonian into such work. The Javanese and Tonkinese come under a 3-year labor contract, and many of them remain in the island after its expiration. Almost every white family in the island has a Javanese servant. In religion, of course, these imported laborers are not Catholic but may be anything from Moslem to Buddhist, Confucianist, or Taoist. Half-caste children are permitted to go to French schools and mingle socially with the French.

Most of the 1,603,000 hectares (1 hectare equals 2.47 acres) of land have been either alienated to agricultural settlers or placed in native reserves, mining concessions, or public forests. It is significant that 45.4 percent of this land is included in mineral reserves as yet for the most part unexploited.

In 1843 a Catholic mission conducted by the Société des Peres de Marie was established at Balade on the north coast, the landing place of Captain Cook. All went well at first, but later friction developed, owing in part to the native desire to obtain stored trade goods and in part to an epidemic, attributable, the natives believed, to the mission fathers. In 1847 the mission was plundered and burned; some of the fathers were taken to Sydney, Australia, on a passing ship. In 1848 the Marist mission was reestablished on the Isle of Pines. Several attempts to establish mission stations elsewhere on the island of New Caledonia failed, until in 1852 a mission was reestablished at Balade, where it has

remained until the present time. Its success was due in part to the French seizure of the island in 1853. Not to be outdone in proselyting by the Catholic Marists, the Protestant Wesleyans in 1854 sent two English missionaries to the island. At the end of the 50's the small island of Maré in the Loyalty group is said to have had 3,000 Protestant Christians on its western half, while natives on the eastern side remained antagonistic but became converted to Catholicism in the 60's when Catholic missionaries arrived. A strange religious war began between Wesleyan Protestants and Marist Catholics. To be sure, it was a religious war in name only, inasmuch as natives were simply perpetuating a traditional native war between the eastern and western sides of the island. The Presbyterians, Mormons, and Seventh Day Adventists also have established missions in New Caledonia. In general, the effect of the missions has been pacific. Family life has profited, and education has so developed that reading and writing have become almost universal accomplishments.

Quite aside from race antagonism, the principal grievances of the natives that led to frequent revolts were the encroachment of the settlers on land formerly utilized by the natives, and the damage caused by the colonists' cattle, which roamed at will throughout the island and destroyed the gardens and plantings of the natives. The planning of the most serious revolt—that of 1878—was attributed to a war chief, Atai, who organized his people for a war of extermination against the whites.

The French Colonial Administration has set aside a number of reservations on which the natives live today practically unmolested and where they grow their own food supply. A few of them outside the reserves are engaged in government projects such as road building, also in coffee picking and other seasonal employment. A definite attempt has been made to improve their condition.

As elsewhere in Melanesia, the native New Caledonian, although he has nominally become a Christian, retains to a certain extent his belief in ghosts. Every individual is occupied by a *ko*, a spirit that leaves the body during sleep. It is, therefore, not proper to awaken someone too abruptly for fear the spirit may not return: one should always be permitted to awaken of his own accord.

The New Caledonian village *trivu* was made up of cone-shaped, thatch-roofed houses resembling tall beehives. This old type of native house with its tall, conical roof and round walls, has but one small opening for air and light and but one low entrance, and is being replaced by a bungalow type of structure with whitewashed stone walls.

The east coast native hut has a roof built of *niaouli* bark inlaid with rock

fragments. The bark as it is stripped from the tree is applied in big sheets on the framework of the roof and weighted down with rocks. The rain converts the bark into a sort of pulp into which the rocks become embedded. Later, when the roof dries, it is a solid mass of rock and bark—a sort of composition board. Elsewhere in New Caledonia the native hut has a thatched roof. Captain Cook wrote of the native house as "something like a beehive, and full as close and warm." Doorposts are carved; there is also a crudely carved figure surmounting the apex of the conical roof. Native villages are pleasantly arranged on the banks of streams, with well-ordered ridged and terraced gardens, watered by little irrigation canals led across them from the mountain brooks. The chief's house is now usually provided with a telephone for emergency use and for calling the government doctor when required.

The natives cultivate taro, also manioc, corn, beans, and the sweet potato (*igname*). Banana plants and breadfruit trees surround the houses of each village. Careful cultivation and irrigation are a necessity in this not too fertile land which quickly parches in the dry season.

Among native domestic utensils are large water-gourds enclosed in attractively plaited cord meshes, as well as large pottery jars. The women do their cooking at open fires as well as in earth ovens. New Caledonians rely on the usual Melanesian fare of coconut, yam, and banana, but not much breadfruit, and only birds and small animals for meat. A large oven-steamed taro pudding, seasoned with fish meat and soured with coconut oil, is the chief item for the evening meal, which is described as a leisurely and politely conducted family gathering.

Natives fish with crude hooks and are adept at spearing fish in the numerous inlets and rivers. Silver mullet, gropers, rock cod, even the squid and sting ray, all contribute to the fishing resources of the islanders. If more fish are caught than are required for immediate use, the rest are split down the back, turned inside out, cleaned and salted, and strung on long wires to dry in the sunshine. Fish thus salted are a staple article of food for the many laborers in the chrome and nickel mines. Miles of intertwined mangrove roots, to which adhere numerous oysters and small blue crabs, are exposed with the outgoing tide along many sections of the coast. Oyster gathering consists simply in cutting off the mangrove root with its attached oysters.

In addition to the ordinary weapons such as clubs, bows and arrows, spears and spear throwers, slings and slingstones, chiefs carried large maces made of greenstone serpentine disks set in wooden handles and bound with bat ("flying fox") fur. A mace of this type long in the

possession of the family of the grand chief Henri Naisseline of Maré, the southernmost of the Loyalty Islands, was presented to the Smithsonian through the commanding officer at Noumea, Maj. Gen. A. M. Patch. Adzes were made of this same serpentine, which was also laboriously fashioned into beads that were drilled and strung as necklaces on fur cord. The fur, taken from behind the bat's ears, was in itself a prized material for decorative girdles and, as with ornaments elsewhere in Melanesia, became a kind of currency.

The natives also wore necklaces with pendent fingers and toes of dead relatives or of well-known sorcerers. They were much in fear of the latter, who were able to imprison a malign spirit within a stone or other fetish and then to bewitch from it a powerful black magic to be exercised against an enemy or for personal gain.

Fear of evil spirits, magic, ancestor worship, and totemism all found a place in their beliefs, although it seems that their totemism had faded from a clear belief in descent from some plant or animal into a vague omen-reading by means of the totem. Thus those who avoided the lizard knew when they found a dead or dying lizard on the path that some member of the clan would also die. Their grotesque dancing masks, usually with large hooked noses, have ceremonial and religious import.

The New Caledonian (Tajos) possesses no migration legend. He is satisfied to say that his ancestors have always lived in the island. Although the New Caledonian is not noted for his prowess as a navigator, he must, nevertheless, have reached the island by boat. His canoes, both outrigger and double, were described by Cook as the clumsiest-looking in all the South Seas.

The average stature of 185 New Caledonian males for which measurements are available is 65.4 inches. It has frequently been observed that the natives of the New Caledonian east coast have lighter skins, rounder features, and a generally less Negroid appearance, but with fuzzier hair, than the natives of the west coast. A handsome New Caledonian has a narrow forehead which is also receding; his nose is flat. This ideal is sought after by mothers of new-born babies and has led to the attempt at shaping the infant's head artificially by depressing its nose and molding its forehead into the desired shape. Since, however, no permanent bandage is placed over the soft, growing skull, the artificial reshaping of the head is for the most part in vain. In western Melanesia, on the other hand, a bandage is placed in infancy about the infant's forehead to produce the desired deformation. The crown of the skull is thus raised to almost twice its normal height.

From birth to death the crises of life for the individual New Caledonian call for ceremonial festivities. The last festival arranged is one in which the individual can play only a passive part. The priest was formerly asked to finish off the sick individual, who may, however, sometimes have asked a member of his family to do this instead. A variation of this procedure was the practice of the coastal peoples of placing the sick under a banyan tree and leaving them there to die. The legs of the dead were flexed to the body, which was trussed with arms bound to the knees and the body wrapped in bark cloth and placed in a sitting position surrounded by gift offerings in the village burial grounds. There followed a period of official ceremonial crying in which the old women played the chief role. Afterwards there was a feast—a *pilon-pilon*, the final tribute to the dead tribesman.

THE FIJI (VITI) ISLANDS AND THE POLYNESIAN FRINGE

The Fiji Archipelago (native name, Viti), consisting of 250 islands, 80 of which are inhabited, lies on Meridian 180°, the international date line, 750 miles east-northeast of New Caledonia. The largest island of the group is Viti Levu. It is 95 miles long from west to east and 67 miles wide. The second largest island is Vanua Levu, 117 miles long and 30 miles in width. The population of the eastern Fijian or Lau group is almost entirely Polynesian in culture though Melanesian in physical type, thus representing the eastern marginal fringe of Melanesia.

The islands of Fiji are mostly volcanic in origin, though some of the smaller islands are coral atolls; some are even clustered about a central lagoon. Coral reefs surround most of the larger volcanic islands. The ruggedness of terrain, together with a luxuriant plant life, supplies a romantic aspect of tropical beauty. Practically no level valleys exist except near the lower courses of rivers, which are numerous. The Rewa River in the southwest of Viti Levu is navigable for small vessels for 40 miles. The most important river of the island of Vanua Levu is the Dreketi. Because of the fertility of its valley lands, Viti Levu is more important than less densely populated Vanua Levu.

The Fijis lie north of the southeast trade wind belt but south of the range of the northwest monsoons. Between November and March, the hot rainy season, strong gales are common, and hurricanes may occur during the remaining months of the year from April to November, when the climate is usually cool and dry, and the temperature in the hills may fall to 50°. Rainfall is heavier (110 inches a year in Suva) on the windward than on the lee side of the islands.

On the lee side of the larger islands forest and jungle growth is replaced by open grassland and scattered trees, mostly pandanus. On the western side New Zealand plant types appear. Along the coast the mangrove thrives in the swampy sections, and the coconut in the drier and more elevated parts. Sugarcane fields have replaced the mangrove, where the land could be drained and reclaimed. Medicinal oil is obtained from the seeds of the indigenous *ndilo* tree (*Calophyllum inophyllum*), and its wood has become commercially valuable. The *dakua* (*Agathis vitiensis*), a pine, yields a valuable resin. Sandalwood (*Santalum*), in native Fijian *yasi*, formerly plentiful in the northwest of Vanua Levu, has become scarce. The commercial demand for sandalwood led directly to early European settlement of the Fiji Islands.

Animal life on Fiji is similar to that of other Melanesian islands, and is characterized by an extreme scarcity of native mammalian forms, being limited to species of bats and rats. Native species of pigeons and parrots are few compared with the many highly colored birds of New Guinea and other islands of western Melanesia. Fish are abundant.

The government of Fiji is under the British Secretary of State for Colonies, Fiji having been annexed by Britain as a Crown colony in 1874 at the termination of the turbulent reign of the Fijian King Thakombau. An appointed governor is assisted by an executive council of six members. There is a legislative council, seven members of which are elected by persons of European descent, two members are native Fijians, and one member is appointed to represent the immigrant Mohammedan or Hindu Indians. The capital of Fiji until 1882 was the town of Levuka, on the high island Ovalau, remarkable for its many gorgelike valleys. Suva on Viti Levu is the present capital of the British Crown colony of Fiji. It has a good harbor.

In 1938 the total population of Fiji was 201,518, of which 100,131 were natives, 92,309 Indians (Hindus), 4,188 whites, 1,979 Chinese, 62 Japanese, and 2,849 of miscellaneous origin. The inland hill tribes live in small, independent village communities, but elsewhere there are larger tribes, and territorial federations, the result of conquest and alliance.

The strategic position of Fiji, astraddle the shipping lanes between Hawaii and New Zealand and between Samoa and New Caledonia, makes it a focal point of shipping lines between Canada, the United States, and Australia. The blockade on cotton exports from the United States during the Civil War led to attempts at cultivating cotton in Fiji. Later, with the aid of contract labor from India, the cultivation of sugarcane became one of the leading industries of Fiji.

The natives of the Fijis are Melanesian in their physical characteristics and presumably came originally by way of the Solomon Islands and the New Hebrides. A deep-sea passage 200 miles wide separates Fiji from Tonga, its nearest Polynesian neighbor on the east. Polynesians, however, have come to Fiji within historic times and settled in its eastern islands, the Lau group, as well as in smaller numbers in Viti Levu and Vanua Levu.

The ancient art of fire-walking has its devotees in Fiji where the practice is still carried out and known as *na vilavilarevu*, and where it was introduced probably from one of the Polynesian islands to the east, as it is not practiced elsewhere in Melanesia. The term "fire-walking" is misleading in that natives walk over hot stones, not over live coals or blazing fire. The feat is confined to a small clan living on the island of Viti Levu southwest of the capital, Suva. It is frequently performed for the entertainment of tourists.

The performers must observe certain taboos dealing with their relations with women for 8 days before the performance, and to insure that this taboo is observed they must sleep away from the village in a special house. For the same period they must abstain from the eating or drinking of the coconut. The stones over which they walk are a type of lava common throughout Fiji; however, the lava must be selected from a certain locality. The stones used in the performance must not be used again but are buried after each performance. A pit about 12 feet in diameter and 4 feet in depth is excavated. Into this pit are carefully placed huge logs on top of which the stones are laid out. The wood is then set ablaze and carefully tended throughout the day, fresh logs being added as required. At the appointed time for the performance the stones are cleared of any burning wood and bedded down to provide a smooth surface for the fire-walkers. This smoothing is done with a vine cut from a banyan tree growing in the same vicinity as that from which the stones were obtained. The fire-walkers insist on this although there is presumably no special merit in this specification. The performance itself lasts about 10 seconds. The fire tenders and stone smoothers are not the same individuals as the fire-walkers who have kept themselves carefully secluded within a small temporary shelter. It is not known whether the fire-walkers undergo a special skin treatment during this period to prevent burns. The stones are unquestionably very hot. The origin of the practice is based on an old Fijian legend which is concerned with ceremonial story telling. Dr. S. P. Langley, Secretary of the Smithsonian Institution in 1900, who witnessed a similar fire-walking at Tahiti, suggested that the stones selected for the fire-walking were poor conductors of heat and, although very hot under-

neath, might have been cool enough to walk upon without too great discomfort.

The Fijian *meke*, popular in the Lau or eastern islands, is a dance in which an equal number of men and women take part. The movements of the women are slow, and they sing as they move. Each woman carries in her right hand a fan which she slaps at intervals. The men are exceedingly energetic and also sing in perfect unison with the women. They leap into the air, lie on their backs, bend forward and backward and undergo numerous other gyrations at amazing speed—all in perfect time while singing at the top of their voices to the accompaniment of drums. This dance or *meke* is the Polynesian *lakalaka* imported from Tonga. Another imported *meke* is the *vakamalolo*, which is performed seated tailorwise on the ground and by bending the body backward and forward and by turning around. The big toes and the feet mark the cadence of the measure. This dance, which has become the most popular *meke* in Fiji, may be performed by boys or by girls alone. The dance is descriptive, and gestures give an intimation of the nature of the theme. If fishing is the subject, the swimming of the fish is imitated, also the throw of the line and the catch. *Mekes* are performed during feasts or are inspired by events in the life of a chief. They are also performed to commemorate births, marriages, and deaths. Ceremonial drinking of *kava* is accompanied by a *meke*.

In the native Fijian *meke* men and women never take part together except among the hill tribes of central Viti Levu. The *meke* is the traditional Fijian celebration performed on occasions of communal interest and may have originated as a celebration of a hunting or fishing expedition, harvest festival, or war victory.

In Fiji, where patrilineal descent and the son's birthright to his father's name are recognized, in contrast with a matrilineal descent and the tracing of lineage through the mother, which is prevalent in western Melanesia, one finds all manner of class distinctions. From the poor "child of the path, the child without a father, son of a pig, son of a clam who was not born at all," many classes are recognized up to the chief who is so highly born as to belong to the family of the gods.

The drinking of *kava*, or *yangona* as the Fijians call it, is invested with solemn formality. "Drinking in" is the essential part of the ceremony of installation of a chief, and a *kava*-drinking circle is the invariable form of deliberation in council or transaction of public business. The large wooden *yangona* bowl is placed before the chief, and the first cup is presented to him, those present steadily clapping during his libation,

ceasing only when he spins the empty cup along the floor. Each member of the circle then receives his portion in turn, with the same jealous observance of precedence as in the apportionment and distribution of food at a feast.

The Fijians today live well-ordered, contented lives, both in their native villages and in the European communities, where they find ready employment as clerks, carpenters, artisans, and native police. Native doctors and native magistrates minister to the health and social well-being of their own people, and three chiefs represent the natives on the legislative council. It is a question, however, as to how far the native race may ultimately give place to the immigrant Hindus, who have become the gardeners and have almost a monopoly on sugarcane growing, on dairying, and, in the towns, on motor road transport.

In the Fiji Islands, which lie as a somewhat detached link at the farthest end of the Melanesian chain, one would expect to find considerable Polynesian influence, both in race and culture, originating in Tonga and Samoa. These influences have operated especially in the eastern islands of the group, the Lau archipelago. Nevertheless, the Melanesian physical type prevails, and one cannot mistake the dark-skinned, mop-headed Fijians for Polynesians. The average stature of Melanesian Fijian males for whom measurements are available is 67.2 inches, that of the Polynesian Samoans 67.6 inches, and of the Tongan, 68.1 inches. It is noted that in respect to stature the Fijian more closely resembles the Polynesian than the Melanesian, whose average stature among males, in the Solomons, is but 63 inches.

Marginal islands in Melanesia frequently show traces of former contact with Polynesians in the form of words and sometimes even entire dialects that resemble those of Polynesia. The complete discussion of Polynesian exploits in travel and colonization has been given in Number Six of the Smithsonian War Background Studies.

Foodstuffs and food plants remain very much the same throughout the two great oceanic areas of Melanesia and Polynesia. The outrigger canoe, the ceremonial brewing and drinking of *kava* derived from the root of the *Piper methysticum*, and many other traits seem to bear out the contention of early racial and cultural contacts.

The presence of Polynesian physical types, languages, and culture traits in the outlying islands of eastern Melanesia is better explained as a late historical intrusion by Polynesians. The island archipelago of Fiji, the most easterly of the Melanesian groups, particularly the Lau group, also some of the outlying islands of the New Hebrides, New Caledonia,

and the Solomons, are noteworthy in that they are in certain respects more Polynesian than Melanesian even though well within the area of Melanesia proper. Ticopia and Ontong Java northeast of the Solomons, and Rennell and Bellona Islands at the extreme southeastern end of the Solomons, are almost entirely Polynesian linguistically. Ontong Java (Lord Howe Island, native name Leuanuiua), however, has more recently been shown to be entirely Micronesian in the physical type of its native inhabitants. The beating out of tapa cloth from the bark of the paper mulberry tree common throughout Polynesia, as well as in those portions of Melanesia where this material is available, is entirely replaced in Ontong Java by cloth woven on the loom. The loom has also made its way south into the Melanesian Banks and Santa Cruz Islands east of the Solomons.

The small island of Rennell has a native population lighter in color than the Polynesian Samoans. The men have handsome features and are taller than the nearby Melanesian Solomon Islanders. The individual hair mop is not so fuzzy as that of the Melanesian. Tattooing, widespread throughout eastern Melanesia and Polynesia, is also seen in this marginal Polynesian island fringe. The practice may be contrasted with the raising of scar tissue (cicatrizacion) practiced by the black-skinned western Melanesians. The ritual of tattooing on Rennell Island is elaborate, both men and women being covered with tattoo designs except on the face and the back. Fish and the frigate bird patterns are characteristic. As in Polynesia, the men wear a waist garment consisting of a bolt of tapa wrapped about their middle with an additional fold passed through the crotch. The women also wear a short skirt of tapa which is wrapped around the waist and bound at the hips.

On Rennell Island fire for cooking is kindled with a fire plow. Stones are placed in the fire, and when these are heated, yams or taro are placed directly on them in a shallow pit oven. The pit is covered over and the food allowed to bake. This procedure, of course, is Polynesian, while the more elaborate western Melanesian methods of preparing sago palm starch for food is unknown. Rennell Islanders supplement their oven-cooked food with edible salt-water oysters and fresh-water mollusks such as snails. They also eat grubs picked from decaying logs, much as do the Australian tribes. The island is too small for growing breadfruit or sugarcane. It should be emphasized that the geographical environment of the Melanesian Islander is quite as influential in shaping his pattern of culture as are traditional or borrowed cultural traits.

MICRONESIAN AND MELANESIAN PROSPECTS

The gradual extension of the controlled areas in the Mandated Territory of northern New Guinea, in New Britain and New Ireland, and in the British Solomon Islands protectorate has brought law and order to the greater part of Melanesia. Petty feuding and native warfare are being eliminated by the district officer and the native policeman. The joint condominium by British and French colonial administrations in the New Hebrides is not particularly conducive to order primarily because of inadequate cooperation on the part of local administrative agencies. However, the general trend toward joint action in solving colonial administrative problems in that island group and the lessening of national rivalry is evident particularly since the fall of France.

The economic requirements of native Micronesians and Melanesians have increased as race contacts with Americans, Europeans, Australians, and Japanese have multiplied. Native demand for trade goods will conceivably increase. Given the protection of law, natives will probably retain ownership of sufficient land to insure their subsistence, relying on labor requirements of commercial plantations, mines, and shipping and export concerns to obtain sufficient money to satisfy their demands for tools, cloth, imported foodstuffs, tobacco, kerosene for lighting, and an increasing number of miscellaneous manufactured objects.

The immediate requirements of the Allies for chrome, nickel, and other minerals affect for the present the economic life of the New Caledonians. The natural resources, chiefly oil, of New Guinea, also of the Solomons and other Melanesian islands, may speedily bring about additional changes in the economic life of those native families and villages where labor recruiting is increased. It is doubtful, however, that seminataive industries of long standing, formerly based on trade demand for mother-of-pearl, coir, matting, copra, and other lesser South Sea products, will survive in a world of economic quotas and substitutes, both synthetic and natural.

The future of the Micronesian and of the Melanesian is closely linked with the commercial exploitation of the islands. If development becomes accelerated so that laborers are imported from the surplus populations of Asia and Indonesia, they may approach extinction as in Japanese-occupied Micronesia, British Fiji, and French New Caledonia. If, on the other hand, commercial development of air transport, mines, and plantations is not too rapid and intensive, it should be possible for existing governmental forces of law and order, through native ownership of land, mission ideals, and medical care to coordinate increased native demand for trade goods and a better standard of living with receding native culture complexes.

The economically more important Micronesian islands mandated to Japan have been intensively colonized by the Japanese. Here, as in New Caledonia, where deported convicts from France have been brought in large numbers, native depopulation and the relative superiority of immigrant stocks have assumed major importance as a threat to the future of the native peoples of those islands. The introduction in large numbers of Indian contract laborers in Fiji to work, first on the cotton plantations and later in the sugarcane fields, and also the bringing to New Caledonia of a relatively large number of Indo-chinese and Javanese to work in the mines are no less sinister for the future of native Fijians and New Caledonians. Spanish colonial administrators transplanted large numbers of Tagalogs from the Philippine Islands to the Marianas, thus providing a means for the dilution and almost complete elimination of the native Chamorro people. If forced or assisted immigration to other islands of the South Seas is prohibited, native peoples may survive, once the initial shock of contact with European civilization has been absorbed. It has been noted that depopulation is gradually stopped in those areas where mission activity is strongest, and also that with few exceptions health conditions are superior among the native contract laborers on coconut plantations of the Bismarck Archipelago and in the mines of New Guinea to those prevailing in the native villages of these laborers. Enlightened medical observation and treatment have raised the level of native health wherever a systematic effort has been made.

The diet of such Melanesian groups as live far from the sea is too much dependent upon the starchy taro and sago and is inadequate in vegetables and fruits. Micronesian and Melanesian coastal peoples with greater variety of diet are physically superior to groups living inland. Native clothing, scant as it was, was far more adapted to the humid climate of tropical Melanesia than were the "decent" clothes demanded by the conservative missionaries of the mid-nineteenth century.

Throughout Melanesia diseases endemic before the coming of the white men include ringworm, hookworm, conjunctivitis, ulcers, scabies, itch, mosquito-induced filariasis which produces elephantiasis, and, in western Melanesia, malaria. Exposure to the myriad insect pests such as flies and the malaria-bringing mosquito cannot be entirely avoided. Even the most modern of western medical practice has no answer to the malaria- and filariasis-producing mosquitoes except with dosages of quinine or atabrin which retard the outbreak of malaria but do not produce the immunity which the native Melanesian seems in a measure to possess.

Early racial contacts resulting from the exploring and trading voyages

of the Portuguese, Spanish, Dutch, French, and English brought to the South Seas many diseases for which the native population had no previously developed immunity. Almost any diseases such as the common cold and measles took on the nature of an epidemic depopulating entire areas. Nineteenth-century whaling and trading voyages, visits by blackbirders, and others were equally destructive to native health. Since that time there have been recorded numerous other visits, most of which introduced diseases previously unknown there. The natives attribute the cause of sickness to the violation of a local taboo, but are somewhat mystified as to why they, rather than the white visitors—the real violators of the taboo—should have been punished by the gods with sickness.

A peculiarity throughout Melanesia is the almost complete absence of syphilis. This condition is generally attributed to the almost universal presence of a closely related disease, yaws. Yaws passes through stages in its development almost identical with those of syphilis.

In many areas the major diseases, smallpox, leprosy, and yaws, are controlled by a strict quarantine of incoming ships and the inoculation of incoming laborers. Notable is the Makogai leprosarium in Fiji. Leprosy is still prevalent in western Melanesia. A recent survey showed about one leper to every hundred individuals in the Solomons. In New Caledonia it was estimated in 1924 that four out of every hundred had contracted the disease.

The Central Medical School attached to the hospital at Suva, Fiji, has initiated a program, under the auspices of the Rockefeller Foundation, of training native medical practitioners from the New Hebrides, Fiji, and the Solomons, along with native students from Micronesian and Polynesian islands, to provide medical service to the widely separated islands and settlements of Melanesia. Each of these native practitioners will ultimately have a hospital under his charge. They are supposed to conform as much as possible to native life on the island to which they are assigned, even in dress, in order to compete with the local witch doctor, whose traditional medical practices are intimately bound up with native sorcery, religion, and magic. The condition of the body, according to native belief, is but a reflection of the state of the soul and the will of the gods. This belief is fatalistic and not conducive to recovery. Native pharmacopoeias and medical lore have for the most part not been scientifically tested. The native sorcerer who applies herbs or native medicines as a countermagic may have potent forces of nature on his side. Punishment of sorcery merely proves to the native that the white man fears his magic.

What the Melanesian has thus far lost of his native culture through contact with culturally advanced and commercially organized peoples from overseas can never be regained. The depression years preceding the outbreak of World War II did nothing to help him regain his lost magic or to reestablish the old economic position of his polygamous household or the political position of his headman and village sorcerer. Micronesians and Melanesians have long ago become acclimated to their tropical island homes where they have developed various patterns of native culture. They are now passing through a process of acculturation to the standards of living developed in the western world. They, themselves, will soon decide whether, as in the Solomons, they will adjust their dance rhythms to the staccato noises of a motor's exhaust, and, as in Fiji, change the text of the traditional *meke* to an expression of appreciation of the wonders of the modern wireless, or whether they will lose all zest for living along with their isolation. In the present era of confusion and movement in the South Seas natives are constantly undergoing new experiences but have little opportunity for free choice in working out new patterns of stable living.

SELECTED BIBLIOGRAPHY

MICRONESIA

CHRISTIAN, F. W.

1899. The Caroline Islands. London.

FURNESS, WILLIAM H.

1910. Yap, the island of stone money. 278 pp., 31 pls. J. B. Lippincott Company, Philadelphia.

GRIMBLE, SIR ARTHUR.

1943. War finds its way to Gilbert Islands. Nat. Geogr. Mag., vol. 83, No. 1, pp. 71-92, 19 pls., 1 map.

LINTON, RALPH.

1926. Ethnology of Polynesia and Micronesia. Field Mus. Nat. Hist., Dep. Anthropol., Guide, pt. 6, pp. 1-191, 14 pls., 59 text-figs., 1 map.

MATSUMURA, AKIRA.

1918. Contributions to the ethnography of Micronesia. Journ. Coll. Sci., Tokyo Imp. Univ., vol. 40, art. 7.

PRICE, WILLARD.

1942. Hidden key to the Pacific. Nat. Geogr. Mag., vol. 81, No. 6, pp. 759-785, 28 pls., map.

SAFFORD, W. E.

1905. The useful plants of the island of Guam; with an introductory account of . . . the character and history of its people. Contr. Nat. Herbarium, vol. 9, pp. 1-416, 69 pls., U. S. Nat. Mus.

THOMPSON, L.

1941. Guam and its people: a study of culture change and colonial education. Shanghai.

YAMASAKI, N.

1927. *Micronesia and Micronesians*. Inst. Pacific Relations, Honolulu.

YANAIHARA, T.

1940. *Pacific islands under Japanese mandate*. Inst. Pacific Relations, New York.

MELANESIA

ARCHEY, GILBERT.

1937. *South Sea folk*. Auckland War Memorial Museum, Auckland.

BAKER, JOHN R.

1929. *Man and animals in the New Hebrides*. London.

BURCHETT, WILFRED G.

1941. *Pacific treasure island, New Caledonia . . . its people and past*. 230 pp. F. W. Cheshire, Pty., Melbourne.

CAPELL, A.

1933. The structure of the oceanic languages. *Oceania*, vol. 3, No. 4, pp. 418-434. Publ. for Australian Nat. Res. Council, London.

1940. Language study for New Guinea students. *Oceania*, vol. 11, No. 1, pp. 40-74. Publ. for Australian Nat. Res. Council, Sydney.

CHETELAT, ENZO DE.

1942. War awakened New Caledonia. *Nat. Geogr. Mag.*, vol. 82, No. 1, pp. 31-55, 14 pls., 1 map.

GOVERNMENT OF AUSTRALIA.

1937. *Official handbook of the Territory of New Guinea*. Canberra.

HADDON, A. C., and HORNEILL, JAMES.

1936-38. *Canoes of Oceania*. Bernice P. Bishop Mus., Spec. Publ. 27-9, vols. 1-3, Honolulu.

HADFIELD, E.

1920. *Among the natives of the Loyalty group*. 316 pp. London.

HOGGIN, H. IAN.

1939. *Experiments in civilization: the effects of European culture on a native community of the Solomon Islands*. 268 pp., 24 pls., 2 maps. London.

HOPKINS, A. I.

1928. *In the isles of King Solomon: an account of twenty-five years spent amongst the primitive Solomon Islanders*. London.

IVENS, W. G.

1918. *Dictionary and grammar of . . . Sa'a and Ulawa, Solomon Islands*. Carnegie Inst. Publ., No. 253.

KEESING, FELIX M.

1941. *The South Seas in the modern world*. Inst. Pacific Relations, Internat. Res. Series. 383 pp. John Day Company, New York.

KNIBBS, S. G. C.

1929. *The savage Solomons as they were and are*. London.

LAMBERT, S. M.

1941. *A Yankee doctor in paradise*. Little, Brown, and Co., Boston.

LEENHARDT, MAURICE.

1930. *Notes d'ethnologie Neo-Caledonienne*. Trav. et Mem. de L'Inst. d'Ethnol., VIII, Université de Paris. 265 pp., 36 pls., 48 figs., 2 maps.

LEWIS, ALBERT B.

1932. *Ethnology of Melanesia*. Field Mus. Nat. Hist., Guide, pt. 5, 209 pp., 64 pls., 2 maps.

MARKHAM, ALBERT H.

1873. *The cruise of the Rosario amongst the New Hebrides and Santa Cruz Islands*. London.

MYTINGER, CAROLINE.

1942. *Headhunting in the Solomon Islands, around the Coral Sea*. 8 vols., 416 pp., illus., map. Macmillan Company, New York.

OCEANIA.

- 1930-1941. Vols. I-XI. Australian Nat. Res. Council, Sydney.

OLIVER, DOUGLAS L.

1942. *Treasure islands of Australasia*. Nat. Geogr. Mag., vol. 81, No. 6, pp. 691-722, 23 ills., 1 map.

REICHARD, GLADYS A.

1933. *Melanesian design. A study of style in wood and tortoise shell carving*. Vols. 1-2. Columbia Univ. Press, New York.

ROBSON, R. W. (Ed.).

1943. *The Pacific Islands yearbook*. Pacific Publ. Pty., Sydney.

SARASIN, FRITZ.

1929. *Ethnologie der Neu-Caledonier und Loyalty-Insulaner*. Munchen. 2 vols., 320 pp., 73 pls.

SHAPIRO, H. L.

1933. *The physical characteristics of the Ontong Javanese: A contribution to the study of the non-Melanesian elements in Melanesia*. Anthropol. Pap., Amer. Mus. Nat. Hist., vol. 33, pt. 3, pp. 231-278, 23 tables, 7 figs.

THURNWALD, HILDE.

1934. *Woman's status in Buin society*. Oceania, vol. 5, No. 2, pp. 142-170, 2 pls. Australian Nat. Res. Council, Sydney.

WILKES, CHARLES.

1844. *U. S. Exploring Expedition, under the command of Charles C. Wilkes, 1838-1842*. Vols. 1-5, Narrative and Atlas. Philadelphia.

WILLIAMS, T., and CALVERT, J.

- 1858-1859. *Fiji and the Fijians*. 2 vols. London, 1858; New York, 1859.

